DOCUMENT RESUME

ED 376 588 EA 026 292

TITLE	Changing Education. Resources for Systemic Reform.
INSTITUTION	Office of Educational Research and Improvement (ED), Washington, DC. Programs for the Improvement of Practice.
REPORT NO	PIP-94-1509
PUB DATE	Oct 94
NOTE	386p.
PUB TYPE	Books (010) -- Reference Materials - General (130)
EDRS PRICE	MF01/PC16 Plus Postage.
DESCRIPTORS	Accountability; Cooperative Education; *Educational Change; Educational Improvement; *Educational Objectives; Educational Technology; Elementary Secondary Education; Governance; Holistic Approach; Professional Development; School Community Relationship; *School Restructuring; *Standards; Student Evaluation

ABSTRACT

This resource book was compiled for the United States Department of Education's Goals 2000 Orientation Conference. Sections present information about the numerous components of successful comprehensive reforms based on high standards, such as the National Education Goals, systemic education reform, standards, student assessment, professional development, governance and accountability, the management of change, the mobilization of community and parental support, technology, and school-to-work initiatives. Sections contain journal articles, policy briefs, diagrams, and resource lists. The resource section contains profiles of national organizations with Goals 2000-oriented activities and resources and a directory of national resource persons. (LMI)

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Changing Education

Resources for Systemic Reform

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Changing Education

Resources for Systemic Reform

U.S. Department of Education

U.S. Department of Education
Richard W. Riley
Secretary

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October 1994

Foreword

Dear Reader:

When President Clinton signed into law the Goals 2000 Act on March 31, he launched a new federal, state, and local partnership. Now we begin the journey of education reform as partners to improve the teaching and learning of America's most precious resource -- our children.

Goals 2000 is not a conventional federal grant program. Goals 2000 is not business as usual. For the first time, the federal government is supporting the development and implementation of *comprehensive* school improvement plans based on high standards for all students. Federal grants will act as a spark to ignite or build on state and local reforms already underway. Our grants will help support the development of state and local comprehensive plans tailored to meet the unique challenges of each state.

Goals 2000 is focused on simultaneously providing excellence and equity in education. It is the first federal effort designed to improve the education of **all** children. This will require collaboration, coordination, and involvement of all members of the community. Developing consensus around high standards and aligning curricula, assessments, teacher preparation, technology, and other parts of the educational system to support those standards are no minor tasks. Education reform will require efforts not only from governors, chief state school officers, state boards of education and state legislatures but, equally as important, parents, teachers, administrators, local school boards, businesses, institutions of higher education, advocacy groups and community members must be intimately involved. Grass-roots involvement will be an essential component for successfully improving education.

This resource book was compiled for the U.S. Department of Education's Goals 2000 Orientation Conference. It contains some information to stimulate your thinking about the numerous components of successful comprehensive reforms based on high standards. I hope that you will use these resources to begin making connections with other people engrossed in similar reform issues. President Clinton is fond of saying that every problem we face in education has been solved by someone. Our challenge is to help each other connect the pieces of successful reforms.

I am glad you have chosen to learn more about our reform agenda. This is truly an exciting time to be involved in education. There is no challenge that is more important, and I look forward to working with you.

Yours sincerely,

Dick Riley

Richard W. Riley

Contents

Page

Foreword iii

Goals 2000

The National Education Goals 2
The Goals 2000 Act—Supporting Community Efforts to Reach Challenging Goals and High Standards 3
Goals 2000: Educate America Act—Supporting Communities and States to Improve Student Achievement 8

Systemic Education Reform

Systemwide Improvement 15
Putting the Pieces Together: Systemic School Improvement 21
Bottom-Up Reform 31
Politics and Systemic Education Reform 36
"For All Students": Limited-English-Proficient Students and Goals 2000 43

Standards

Links Among Teaching, Learning, and Opportunity-To-Learn Standards and Strategies 75
Developing Content Standards: Creating a Process for Change 81
Opportunity To Learn 90
Students with Disabilities and Educational Standards: Recommendations for Policy and Practice 95
Goals 2000 and Skill Standards 101

Student Assessment

Content Standards and Assessment 113
Performance Assessment 118
Student Portfolios: Administrative Uses 122
From Portfolios to Performance 128
Common Characteristics of Authentic Assessments 129
Guidelines for Inclusion of Students with Disabilities in Large-Scale Assessments 130
Critical Issues That Will Determine the Future of Alternative Assessment 134

Professional Development

Teaching and Learning 147
A Paradigm Shift in Staff Development 152
Teachers' Professional Development and Education Reform 154
Teacher Development in Professional Practice Schools 161

Governance and Accountability

State Education Accountability Reports, Indicator Reports, and Report Cards 181
Beyond Site-Based Management: Empowering Teachers to Reform Schools 187
Including School Finance in Systemic Reform Strategies: A Commentary 195

Page

Managing Change

How People Accept Change 207
Stages of Change Commitment 208
Phases of Transition Through Change 209
Getting Reform Right: What Works and What Doesn't 211

Mobilizing Community and Parental Support

Parental and Community Support and Involvement 221
Make Parents Your Partners 227
Keys to Successful Teamwork, Partnerships, and Networks 229
Planning: A Task Framework 231
Action Minutes 232
Continue-Start-Stop 233
Force Field Analysis 235
Cause and Effect Diagram 237
Making Sure Your Plan Succeeds 240
Paradigms for Parent and Family Involvement 241

Technology

Restructuring and Technology: Partners in Change 245
The Role of Computer Technology in Restructuring Schools 253
Beyond Equal Access: Gender Equity in Learning with Computers 261
A Truly Empowering Technology-Rich Education—How Much Will It Cost? 267

School to Work

Integrating Academic and Vocational Education 275
Creating a School-to-Work Opportunities System 280
Goals 2000 and School-to-Work Opportunities 283
Grants to States and Local Communities 285
Common Questions, with Answers 287
Available Resources 291
Teaching Tomorrow's Work Force 294
Industry-Based Education: A New Approach for School-to-Work Transition 297
State Contacts 317
Regional Federal Information Contacts 323
Resource Materials Relevant to School to Work 327

Resources

Profiles of National Organizations with Goals 2000-Oriented Activities and Resources 333
Directory of National Resource Persons 370

Goals 2000 sets into law the National Education Goals

BY THE YEAR 2000...

- SCHOOL READINESS— All children in America will start school ready to learn.
- SCHOOL COMPLETION— The high school graduation rate will increase to at least 90 percent.
- STUDENT ACHIEVEMENT AND CITIZENSHIP— All students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography, and every school in America will ensure that all students learn to use their minds well so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy.
- MATHEMATICS AND SCIENCE— United States students will be first in the world in mathematics and science achievement.
- ADULT LITERACY AND LIFELONG LEARNING— Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.
- SAFE, DISCIPLINED, AND ALCOHOL- AND DRUG-FREE SCHOOLS— Every school in the United States will be free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning.
- TEACHER EDUCATION AND PROFESSIONAL DEVELOPMENT— The nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.
- PARENTAL PARTICIPATION— Every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.

UNITED STATES DEPARTMENT OF EDUCATION

GOALS
2000

The Goals 2000 Act
Supporting Community Efforts to Reach Challenging Goals And High Standards

Since 1983, when the report "A Nation at Risk" sent alarming signals across America that our nation's public schools were not preparing our youth for the changing times, many state and local leaders have been engaged in school reform. What we have all learned from their experiences has shaped the principles underlying the Goals 2000: Educate America Act — the need for high expectations for students, full participation by parents, educators and communities in education, safe and disciplined learning environments, quality teaching and professional development, the effective use of technology in learning, long-term systemwide improvement efforts, and communities and states custom-making school improvement efforts to meet their needs.

Goals 2000 has drawn broad support from both major political parties, parents, and representatives of the business community, governors, teachers, labor, school administrators, state legislators, school boards, and state school superintendents.

The Act recognizes that there is no simple or cookie cutter approach to improving education. It supports a wide array of state and local approaches to raise academic achievement, and to provide a safe, disciplined learning environment for all children. **The Goals 2000 Act "reaffirms that the responsibility for control of education is reserved to the states and local school systems."**

Major Directions of Goals 2000:

- IMPROVING STUDENT ACHIEVEMENT — HIGH EXPECTATIONS FOR ALL

What we've learned: We've learned that children often meet expectations set for them. U.S. Education Secretary — and former South Carolina Governor — Richard Riley cites the urgent need for "ending the tyranny of low expectations" that is blocking the progress of many of our students.

What Goals 2000 helps states and communities to do: States and communities are being asked to make their own high expectations concrete by establishing standards for what children should learn and know how to do. These standards would be in core academic subjects, such as math, science and English. Voluntary national standards could be used as models for academic excellence to help set challenging learning standards.

- INCREASING PARENT AND COMMUNITY INVOLVEMENT IN EDUCATION

What we've learned: While schools have been given an important responsibility for helping communities and parents to educate children, we have learned that schools cannot do it alone. Students simply achieve more when there is meaningful parental and community involvement in their children's education. Parents and families are often our "secret weapon" to improve student learning. The American family is the rock on which a solid education can and must be built.

What Goals 2000 helps states and communities to do: The Goals 2000 Act encourages the building of strong family-school partnerships for learning. Schools need to open their doors for parental and community involvement in the design and implementation of school improvement efforts. At the state and local level, broad-based panels will develop and oversee the implementation of improvement efforts, including strengthening parental involvement in learning.

Finally, Goals 2000 authorizes the creation of parent resource centers to support strong and effective parental involvement.

- MAKING SCHOOLS SAFE, DRUG-FREE AND DISCIPLINED

What we've learned: Students learn better when they are in orderly environments in which they feel safe. Such environments also make it possible for teachers to focus on teaching and provide students with real opportunities for learning.

What Goals 2000 helps states and communities to do: States and communities can address ways to make schools safe, drug-free, and more disciplined as part of their improvement efforts. In addition, Title VII of Goals 2000, entitled the Safe Schools Act, authorizes the Secretary of Education to award competitive grants to school districts to help them reduce violence. Grants of up to $3 million each may be made for periods up to two years. These funds can support activities ranging from the installation of metal detectors to comprehensive violence prevention efforts, which might include mentoring programs and the training of school personnel in conflict resolution.

Related activities could also be supported by the crime prevention authority in the crime bill that recently passed Congress. This bill provides substantial new funds for community and school efforts to prevent and reduce violence.

- UPGRADING TEACHER TRAINING AND PROFESSIONAL DEVELOPMENT

What we've learned: Improving student achievement depends on the ability of teachers to teach challenging subject matter to all students, and to manage effectively an orderly learning environment. Prospective and current teachers need sustained and meaningful opportunities to learn how to do these things well.

What Goals 2000 helps states and communities to do: Participating states will develop competitive grant processes to award at least 60 percent of Goals 2000 funds in the first year — and at least 90 percent in subsequent years — to school districts for the development of reform plans, *and* for improving professional development opportunities for prospective and current teachers. Subgrants for professional development will be awarded by the state to school districts working with institutions of higher education and other non-profit organizations.

- BRINGING TECHNOLOGY INTO THE SCHOOLS

What we've learned: The use of educational technologies — including computers in the classroom — can improve student achievement, support professional development, and increase the learning resources available to our students. In this information age, students must be prepared to use computers and other technology in school and beyond.

What Goals 2000 helps states and communities to do: Goals 2000 funds can be used by states to integrate technology into their school improvement efforts. It also creates an Office of Educational Technology within the Department of Education, charged with supporting state and local efforts to bring technology into the classrooms.

- SUPPORTING LONG-TERM AND SYSTEMWIDE EFFORTS

What we've learned: Improving schools involves intensive and long-term effort. Moreover, success depends on ensuring that all parts of an educational system are working together to help all children reach challenging academic standards. Reforms are less likely to lead to gains in student achievement when focus is placed only on one piece of an educational system, rather than on all pieces and how they fit together. A piecemeal approach, for example, might focus on professional development or educational technology without looking at challenging standards for what communities want their children to learn, or rigorous assessments of learning.

What Goals 2000 helps states and communities to do: At the heart of Goals 2000 is the grant program for the development and implementation of long-term comprehensive school improvements. Participating states and communities are being supported in their efforts to set high academic standards and goals, and improve all aspects of education to reinforce the achievement of these standards and goals — including parent involvement, the use of better assessments, professional development, technology, and how related education and training initiatives can work together to improve student achievement.

- **COMMUNITIES, STATES TAILORING IMPROVEMENTS TO THEIR NEEDS**

What we've learned: Improvements in education are most likely to take place when schools, districts, and states have the flexibility and support needed to custom-make their own strategies to improve student achievement. This approach is particularly effective when new flexibility is exchanged for accountability based on results.

This lesson highlights the need for a new role of government at all levels — one that focuses on removing unnecessary barriers to improvement, and supporting those closest to the classroom and community as they work to improve their schools.

What Goals 2000 helps states and communities to do: Under Goals 2000, the focus of government shifts from rules and compliance, and toward flexibility and support for high student achievement and accountability for results. Moreover, Goals 2000 provides support for communities and state to custom-make their own improvement efforts to meet their own needs. The two-page Goals 2000 application and the absence of any regulations associated with the Goals 2000 plans are important — and unprecedented — manifestations of this new partnership.

The Goals 2000 Act provides new waiver authority to the Secretary of Education to cut through federal red tape in education. Once a state reform plan is approved, the state may ask the Secretary to waive requirements of certain federal education programs that the state has determined impede the implementation of state or local plans. State educational agencies may also submit waiver requests on behalf of local educational agencies and schools.

In addition, six states will be selected for participation in an education flexibility demonstration program. This provision authorizes the Secretary to *delegate* his waiver authority to state educational agencies.

Helping to Reach the National Education Goals

The Goals 2000 Act formalizes in law eight national education goals. These goals constitute a lighthouse that can guide the efforts of communities and states to improve education. The Goals are: By the year 2000...

School readiness. All children in America will start school ready to learn.

Improved student achievement. All students in America will be competent in the core academic subjects.

Increased graduation rate. The high school graduation rate will increase to at least 90 percent.

Best in Math and Science. U.S. students will be first in the world in math and science.

Adult literacy and lifelong learning. Every adult American will be literate and possess the skills necessary to compete in the economy of the 21st century.

Teacher education and professional development. All teachers will have the opportunity to acquire the knowledge and skills needed to prepare U.S. students for the next century.

Safe, disciplined, and drug-free schools. Every school in American will be safe, disciplined and drug-free.

Parental involvement. Every school will promote parental involvement in their children's education.

Conclusion

Together, these school improvement efforts — supported by Goals 2000 — can help create a new ethic of learning in this country, and play a critical role in helping children reach challenging goals and standards. These efforts can help create better education and training opportunities — geared to the needs of states and local communities — to best support children's success in school, in the workplace, and as responsible citizens in our nation's democracy.

9/9/94

UNITED STATES DEPARTMENT OF EDUCATION

GOALS 2000

Goals 2000: Educate America Act Supporting Communities and States to Improve Student Achievement

Overview

- The Goals 2000 Act provides resources to states and communities to develop and implement comprehensive education reforms aimed at helping students reach challenging academic and occupational skill standards.

Legislative Review

- On March 23, the House of Representatives approved the final Goals 2000 bill by a bipartisan vote of 306-121. On March 26, the Senate approved Goals 2000 by a bipartisan vote of 63-22.

- The President signed the bill into law March 31, 1994.

Timetable and Funding

- Congress has appropriated $105 million for Goals 2000 for fiscal year 1994. First-year funds became available to the states on July 1, 1994. The President has asked Congress for a substantial increase for fiscal year 1995. The House of Representatives has proposed $388.4 million and the Senate has proposed $428.4 million. A House-Senate conference committee will determine the final appropriation for Goals 2000 for fiscal year 1995.

- For first-year funding, states have been asked to submit an application that will describe how a broad-based citizen panel will develop an action plan to improve their schools. The application will also describe how subgrants will be made for local education improvement and better teacher preservice and professional development programs.

- During the first year, states will use at least 60 percent of their allotted funds to award subgrants to local school districts for the development or implementation of local and individual school improvement efforts, and for better teacher education programs and professional development activities.

- In succeeding years, at least 90 percent of each state's funds will be used to make subgrants for the implementation of the state, local and individual school improvement plans and to support teacher education and professional development.

- During the first year, local districts will use at least 75 percent of the funds they receive to support individual school improvement initiatives. After the first year, districts will pass through at least 85 percent of the funds to schools.

Components of the "Goals 2000: Educate America Act"

Title I: Setting High Expectations For Our Nation: the National Education Goals

Formalizes in law the original six National Education Goals. These goals concern: readiness for school; increased school graduation rates; student academic achievement and citizenship; mathematics and science performance; adult literacy; and safe, disciplined, and drug-free schools. The Act adds two new goals that encourage parental participation and better professional development for teachers and principals.

Title II: Public Accountability for Progress Toward the Goals and Development of Challenging, Voluntary, Academic Standards

Establishes in law the bipartisan National Education Goals Panel, which will: report on the nation's progress toward meeting the goals; build public support for taking actions to meet the goals; and review the voluntarily-submitted national standards and the criteria for certification of these standards developed by the National Education Standards and Improvement Council.

- Creates the National Education Standards and Improvement Council, made up of a bipartisan, broad base of citizens and educators, to examine and certify voluntary national and state standards submitted on a voluntary basis by states and by organizations working on particular academic subjects.

- Authorizes grants to support the development of voluntary assessment systems aligned to state standards, and for the development of model opportunity-to-learn standards.

Title III: Supporting Community and State Efforts to Improve Education

- The central purpose of the Goals 2000 Act is to support, accelerate, and sustain state and local improvement efforts aimed at helping students reach challenging academic and occupational standards.

Broad-Based Citizen Involvement in State Improvement Efforts

- The Governor and the Chief State School Officer will each appoint half the members of a broad-based panel. This panel will be comprised of teachers, principals, administrators, parents, representatives of business, labor, and higher education, and members of the public, as well as the chair of the state board of education and the chairs of the appropriate authorizing committees of the state legislature.

- States that already have a broad-based panel in place that has made substantial progress in developing a reform plan may request that the Secretary of Education recognize the existing panel.

Comprehensive Improvement Plan Geared to High Standards of Achievement

- The State Planning Panel is responsible for developing a comprehensive reform plan.

- States with reform plans already in place that meet the Act's requirements will not have to develop new plans for Goals 2000. The U.S. Secretary of Education may approve plans, or portions of plans, already adopted by the state.

- In order to receive Goals 2000 funds after the first year, a state has to have an approved plan or have made substantial progress in developing it.

- A peer review process will be used to review the state plans and offer guidance to the State Planning Panel. The U.S. Department of Education also will offer other technical assistance and support by drawing on the expertise of successful educators and leaders from around the nation.

In general, the plans are to address:

- Strategies for the development or adoption of content standards, student performance standards, student assessments, and plans for improving teacher training.

- Strategies to involve parents and the community in helping all students meet challenging state standards and to promote grass-roots, bottom-up involvement in reform.

- Strategies for ensuring that all local educational agencies and schools in the state are involved in developing and implementing needed improvements.

- Strategies for improved management and governance, and for promoting accountability for results, flexibility, site-based management, and other principles of high-performance management.

- Strategies for providing all students an opportunity to learn at higher academic levels.

- Strategies for assisting local educational agencies and schools to meet the needs of school-age students who have dropped out of school.

- Strategies for bringing technology into the classroom to increase learning.

Funds are also available to states to support the development of a state technology plan, to be integrated with the overall reform plan.

Broad-Based Involvement in Local Education Improvement Efforts

- Each local school districts that applies for Goals 2000 funds will be asked to develop a broad consensus regarding a local improvement plan.

- Local districts will encourage and assist schools in developing and implementing reforms that best meet the particular needs of the schools. The local plan would include strategies for ensuring that students meet higher academic standards.

Waivers and Flexibility

- State educational agencies may apply to the U.S. Secretary of Education for waivers of certain requirements of Department of Education programs that impede the implementation of the state or local plans. States may also submit waiver requests on behalf of local school districts and schools.

- The Secretary may select up to six states for participation in an education flexibility demonstration program, which allows the Secretary to delegate his waiver authority to State education agencies.

- The Act specifies certain statutory and regulatory programmatic requirements that may not be waived, including parental involvement and civil rights laws.

Title IV. Support for Increased Parental Involvement

- This title creates parental information and resource centers to increase parents' knowledge and confidence in child-rearing activities and to strengthen partnerships between parents and professionals in meeting the educational needs of children. Parent resource centers will be funded by the U.S. Department of Education beginning in fiscal year 1995.

Title V. National Skill Standards Board

- This title creates a National Skill Standards Board to stimulate the development and adoption of a voluntary national system of occupational skill standards and certification. This Board will serve as a cornerstone of the national strategy to enhance workforce skills. The Board will be responsible for identifying broad clusters of major occupations in the U.S. and facilitating the establishment of voluntary partnerships to develop skill standards for each cluster. The Board will endorse those skill standards submitted by the partnerships that meet certain statutorily prescribed criteria.

Relationship of Goals 2000 to Other Federal Education Programs

- State participation in all aspects of the Goals 2000 Act is voluntary, and is not a precondition for participation in other Federal programs.

- The Goals 2000 Act is a step toward making the Federal government a better partner — a supportive partner — in local and state comprehensive improvement efforts aimed at helping all children reach higher standards. The proliferation of many sets of rules and regulations for different federal education programs has often interfered with local school, community or state efforts to improve schools. The Goals 2000 Act is designed to be flexible and supportive of community-based improvements in education.

- Other new and existing education and training programs will fit within the Goals 2000 framework of challenging academic and occupational standards, comprehensive reform, and flexibility at the state and local levels. The aim is to give schools, communities and states the option of coordinating, promoting, and building greater coherence among Federal programs and between Federal programs and state and local education reforms.

- For example, the School-to-Work Opportunities Act will support state and local efforts to build a school-to-work transition system that will help youth acquire the knowledge, skills, abilities, and labor-market information they need to make a smooth transition from school to career-oriented work and to further education and training. Students in these programs could be expected to meet the same academic standards established in states under Goals 2000 and will earn portable, industry-recognized skill certificates that are benchmarked to high-quality standards.

- Similarly, the Clinton Administration's proposed reauthorization of the Elementary and Secondary Education Act (ESEA) allows states that have developed their own standards and assessments under Goals 2000 to use them for students participating in ESEA programs, thereby providing one set of standards and assessments for states and schools to use for their own reform needs and, at the same time, to meet Federal requirements.

9/9/94

Systemic
Education
Reform

Systemwide Improvement

- Because every child deserves a world-class education, every school and community in a state must develop ownership of the Goals 2000 reforms.
- Building an action plan, reaching out to all segments of the state, and continually supporting all communities' reform efforts are among the leadership responsibilities that contribute to reform that is truly systemwide.

Goals 2000: Educate America Act represents an ambitious vision of educational reform. Unlike some past reforms, in which the aim was to establish outposts of excellence in a few individual schools, this legislation is intended to stimulate and support reform throughout each state's education system. With leadership from the state and community levels, all districts and schools can become involved in developing and implementing improvements.

What is systemwide improvement?

Systemwide improvement is broadly based movement toward a common goal. It respects the diversity of local circumstances, strategies, and energies but channels the reform effort into a shared framework. This is a bold vision; few precedents exist. Under Goals 2000, states and communities will need to exercise ingenuity in building on existing innovations and stimulating improvement in every district and school.

State leaders must make sure all districts have access to the most promising curricular materials, learning technologies (including distance learning), professional development, leadership development, and qualified teachers. They must strengthen the communication channels that enable districts, schools, and communities to learn from one another's experiences and to share their best ideas. They need to engage their parents, educators, and business and civic leaders in working together to provide their children with a world-class education for every child.

Why is it important in the Goals 2000 action plan?

Systemwide improvement is a critical component of the plan. The essence of the Goals 2000 approach is a concerted, statewide drive to reach high standards in every school, with all schools and communities working within a shared framework. Shaping the development of this framework, building statewide ownership for it, and creating the conditions for its realization are vital tasks of the state leadership team.

To foster improvement that goes beyond a few vanguard schools and districts, state leadership teams must do a few key things:

- organize a statewide effort to help educators, parents, and citizens understand the need to make dramatic improvements in student learning and to reach the National Education Goals and elicit their ideas and support to make this happen;

This paper is offered to stimulate discussion and thinking in one of the key components to be included in Goals 2000: Educate America Act plans. We welcome revisions and suggestions for examples of effective state and local practices for future editions. Please send your comments to: Goals 2000; U.S. Department of Education; 400 Maryland Avenue, SW; Washington, DC 20202.

- build and communicate an action plan for the improved education system;
- align every element of state policy to support and reward achievement of that action plan; and
- commit resources to assisting local educators, working with parents and business and community leaders in "going to scale"—to go from a few classrooms and schools getting outstanding achievement to many more.

Building ownership and support for mutually agreed upon goals and high standards—the state action plan—is critical in systemwide improvement. State leadership teams will have to work to draw many constituencies into a shared understanding of challenging standards, what goals they want to achieve, and why they should be achieved. This understanding paves the way for reform in schools and communities that have not been innovators in the past. Participants will have to grapple with educational needs of their community and state, how to achieve their goals, the use of time, new organizational structures of schooling, and the specifics of more challenging content, much higher student performance, and high quality instruction. The reason is that in education, like other fields, people often assert that their own schools already reflect the most up-to-date ideas. Only when everyone involved actually understands the needs, the higher goals and standards, and the intended reforms—in depth, and in contrast to current practice—can the necessary energy for change be mobilized. By the same token, the building of a shared action plan must engage all the relevant constituencies in a state or locality. Outreach to thousands of parents, teachers, school administrators and board members, business and community leaders, civic organizations, and the media across a state is essential. Through forums, seminars, speaker bureaus, local task forces, teleconferences, toll-free numbers, newspaper inserts, and television specials, a large segment of the state needs to be engaged in discussing needed reform, improvements, and the setting of goals and high standards.

A special dimension of building and conveying a vision is the involvement of the general public in the reform effort. Statements of purpose must communicate clearly and must connect to the real-world concerns of parents and other citizens. Bringing all students to high levels of performance should be an intuitively appealing goal, but in fact some of the reforms that it will entail are challenging to conventional images of schooling. For example, students working in a group to analyze data on a spreadsheet—rather than completing a page of long-division problems alone—may not look as if they are doing mathematics. Cultivating public support for reform is not necessarily easy. Opinion polling and focus groups can help in finding common ground and terminology to move forward together.

Aligning elements of education policy with the new vision is also more complicated than it may seem at first. Often overlooked in the creation of new policies is the need to clear away some of the tangle of *old* policies. If not reexamined and revised, existing policies could block the spread of reform. Examples include the rules governing time allocations in the school, college admissions requirements, staffing allowances based on attendance, linkages with community colleges and businesses, and the requirements for planning and consultation put in place by earlier reforms. Some of these are easier to revise, waive, or remove than others, but all can potentially impede change. Yet some can also be helpful.

After the involvement statewide of key stakeholders in drafting and communicating an action plan has primed districts and schools for improvement, and policies have been aligned to ease the way, the provision of support to districts, schools, and individual professionals and parents is absolutely critical. One form of support is financial assistance, with Goals 2000 and other public and private funding sources potentially available. An important use for the funds will be team building at the school and district levels to develop their own action plans to reach the goals and high standards, sustained professional development, engaging teachers and others in hands-on exploration of more ambitious versions of standards, instruction, and assessments, building school-business-college partnerships, expanding parent and grandparent involvement in the school and beyond the school day, enhancing student learning opportunities during the school day and after school and in the summer by linking up with arts, social and cultural organizations, museums, community groups, retired citizens, and professional organizations (e.g., engineers, historians, technicians, health or computer professionals).

Support also takes the form of technical assistance. At the simplest level, good ideas have to have some way of spreading from site to site; providers of technical assistance can bring this kind of information. At a deeper level of engagement, assistance providers can be "critical friends"—a term used by the Coalition of Essential Schools. They provide the encouragement that educators need when engaged in demanding change efforts, and they pose questions that can reframe and enlarge the scope of the reform. In these ways, they can play an important part in helping reform efforts to build rather than fade away. Teachers and principals can also be engaged as assistance providers, with the double benefit that they can impart their own ideas while learning from the work of the educators they visit. Such alliances of practitioners can be highly cost-effective—an important benefit, because expert assistance is expensive.

Networks for continuing communication will help improvement to spread systemwide. Teachers, administrators, parents, and others who need to take active roles in change can be linked into networks—meeting face-to-face, electronically, or both—for sharing ideas about curriculum, assessment, and standards. Researchers can be enlisted as network members as well. Existing experience with electronic networks shows the advantages of this technology, especially the opportunity for network members to get almost an instant response to their concerns about reform from colleagues in nearby schools or colleges or across the country who have had similar problems and have access to solutions. Experience also shows that in-person support can lay important groundwork for electronic communication, as found by South Carolina's Center for School Leadership (described below).

Clearly, the elements of systemwide improvement will take some time to be fully realized. We know that school reform is a process that must change over time rather than a fixed event. State leaders must remain flexible in the way they phase in the elements of the action plan, constantly being mindful of and facilitating local school, district, and community ideas and promising approaches to meet the goals and high standards.

What are examples of promising strategies and programs?

Few states have as yet carried out reforms that begin in a handful of schools and districts and move outward to pervade the state. Some states are in various stages of this process, however, and their ideas can be helpful to others. States can also learn from the experiences of telecommunications networks such as the ones described below. It is noteworthy that the groundwork for systemwide improvement in several states begins in the early stages of developing curriculum frameworks, improved student assessment, and standards, through widespread public involvement in these processes. Others have engaged large numbers of educators, parents, business people, and citizens in helping identify important education goals to be achieved in their state or community and suggested strategies to help reach their goals. Still others have linked schools involved in promising reform strategies or community groups engaged in long-term reform. States will probably need to encourage and foster these and other approaches to create and sustain the widespread ownership that will lead to statewide improvement.

California

The development and implementation of state curriculum frameworks has incorporated a number of initiatives aimed at systemwide implementation—efforts to draw grass-roots educators into the process so that the frameworks will be effectively implemented on a wide scale. For example, the subject-matter projects (the California Math Project, California Science Project, and so on) have been vehicles for statewide professional development, bringing together groups of teachers for four-week summer sessions followed by meetings during the school year. In each project, teachers work to develop classroom activities consistent with the curriculum frameworks. Three state reports on restructuring at each level of schooling *(It's Elementary, Caught in the Middle,* and *Second to None)* spawned corresponding statewide networks (Elementary Alliance, California League of Middle Schools, and the One Hundred High Schools Network) that support school restructuring. The Alliance sponsors an annual conference on elementary school restructuring, and its members communicate using an electronic bulletin board. The League fosters regional partnerships among member schools by designating clusters of schools and assigning mentor schools for each cluster; clusters meet once a month to share ideas and discuss issues they have in common. The high school Network provides mini-grants to member schools to facilitate planning.

California has also developed a new assessment system tied to its new curriculum frameworks. The new California Learning Assessment System (CLAS) includes two components, only one of which has been widely implemented. The first component, a new standardized test, includes modified multiple-choice items, open-ended questions, constructed-response problems, and a writing test, all of which require students to apply what they have learned rather than regurgitate facts. The second component is portfolio assessment, which is being implemented incrementally throughout the state. Teachers grade the open-ended items and the writing test using scoring guides and rubrics developed by the state with substantial input from educators and assessment experts. Six performance standards, developed by a state task force, describe what a student knows and can do based on his or her CLAS scores.

South Carolina

Like California, South Carolina has a long history of school reform and attempts to build grass roots involvement and support. Most recently the state has made efforts to build local engagement in curriculum frameworks as a way of priming the education system for the next phase of reform. Beginning in the early 1980s, the governor, educators, business, and community leaders formed a partnership to design a comprehensive action plan with extensive educator, parent, and citizen involvement in identifying six critical goals and strategies to achieve the goals by 1990–91. Regional forums, toll-free numbers, speaker bureaus, opinion polling, and ad campaigns were all used to engage the entire state in a dialogue about the future of education. Those business-education committees still exist today to keep the pressure on for continuous improvement. Throughout the 1983–91 implementation period close linkages were kept with local educators and citizens to keep the reforms on track.

In addition to building statewide ownership and understanding of reform initiatives generally, it is important to create networks and support. South Carolina is also doing this in several ways. The Center for School Leadership at Winthrop University has formed a restructuring network in the state, involving as "associates" more than 100 schools that make a commitment to shared decision making and new instructional methods. The center's assistance combines personal, on-site help tailored to the site plus continuing electronic access to a network of 8,000 educators. Through telecommunications, participating teachers have access to collaborators across the state and region. To become an associate, a school must have district support, a college partner, and a local business partner; this combination of partners helps sustain the initiative.

The South Carolina Teacher Recruitment Center links numerous middle and high schools with almost all the colleges and universities in the state to create a pipeline of bright, interested young people interested in teaching as a career. For example, the Teacher Cadet Program helps high school students see the benefits of tutoring by working with master teachers.

Vermont

The Vermont Board of Education recently approved a Common Core of Learning that lists "vital results" that all students need to achieve in four domains: communication, reasoning and problem solving, personal development, and social responsibility. In the area of communication, for example, students are expected to write clearly, speak persuasively, read with understanding, learn a foreign language, employ fine arts as a communication strategy, and use information technology. Early development of the Common Core of Learning included town meetings throughout the state, involving business and citizens in determining what students should know and be able to do. Subsequently, every teacher in the state has been involved in review and feedback on the Common Core of Learning. The Department of Education is currently developing an interdisciplinary curriculum framework tied to the Common Core that will undergo a similar statewide review process.

Vermont has also pioneered a multi-faceted state assessment system that features portfolio assessment as a tool to gauge student achievement. A standardized Uniform Test in reading and mathematics includes a combination of multiple choice and open-ended questions. Students in grades 4 and 8 maintain separate portfolios of their work in writing and mathematics, which classroom teachers assess using a rubric developed by the state. Students select a single best piece from their portfolios and explain why their choice is their favorite and what it shows about their ability. Random samples of best pieces are submitted to the state for statewide, regional, and local assessment purposes.

New York

A *New Compact for Learning,* adopted by the Regents in 1991, redefines education in the state and promotes partnerships between schools and communities to help students attain the Regents' goals. Specifically, the New Compact sets statewide goals; promotes local initiative; offers resources, incentives, and assistance to local districts; assesses results; and provides rewards for success and remedies for failure. The state's Curriculum and Assessment Council, composed of leading New York educators and distinguished representatives from business, parents, and the broader community, bears primary responsibility for recommending policies that will be the basis for setting learner standards in major content fields, coordinating the development of curriculum frameworks, and designing an assessment system that uses more authentic assessment procedures to measure students' progress toward the state standards. Committees of teachers and other distinguished citizens are developing the learner standards and curriculum frameworks in each content area. The Curriculum and Assessment Council proposes replacing the state's two-tracked graduation system based on students' course of study with a unitary system that would rate students as proficient, competent, or distinguished based on their performance on a series of state assessments, possibly including portfolios.

Under the Compact, schools and school districts, with input from parents, have more freedom "to develop and conduct educational programs which produce better results." Local school boards will set their own objectives based on the state's standards, and site-based councils composed of parents and teachers will share in educational planning and decision-making focused on improving student achievement. The Regents pledge to offer incentives for the schools and districts that exercise initiative in improvement, and to provide assistance in several forms—including help from a corps of teachers and supervisors who conduct school and district School Quality Reviews, and statewide dissemination of information on effective educational programs and practices. The Compact specifically addresses the need to create a climate for school restructuring and reform; it emphasizes the need for staff development, high quality curriculum materials, and an assessment system that responds to the needs of the students, their parents, and teachers.

Educational Native American Network (ENAN)

A nationwide telecommunications network, ENAN is based at the Center for Technology and Education at the University of New Mexico in Albuquerque. It provides a vital link among the Bureau of Indian Affairs, schools, teachers, and students. Onsite training is available. The network is often used for student projects—including nationwide electronic seminars, math and science projects, and communication with members of the Maori Tribe in New Zealand—but it plays a role in systemwide improvement for teachers and administrators as well. It sponsors interactive discussion forums; allows teachers to share curricular materials, lesson plans, and instructional ideas; provides on-line support and advice on administrative questions; and offers administrators a way to discuss management and leadership issues with peers. It also offers distance learning courses toward teacher certification in New Mexico and Arizona. Central office personnel are readily accessible through the network to help schools with immediate feedback.

Where can I go for additional information?

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Reading List

David, Jane L., and Paul D. Goren (1993). Transforming education: Overcoming barriers. Washington, DC: National Governors' Association

Massell, Diane (1994). Achieving consensus: Setting the agenda for state curriculum reform. In Richard *F. Elmore and Susan H. Fuhrman, eds., The* governance of curriculum. Alexandria, VA: Association for Supervision and Curriculum Development.

Smith, James R. Leadership versus control: A strategic approach to lasting school reform. Washington, DC: Council of Chief State School Officers.

Organizations

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CPRE POLICY BRIEFS

REPORTING ON ISSUES AND RESEARCH IN EDUCATION POLICY

Putting the Pieces Together: Systemic School Reform

This issue of **CPRE Policy Briefs** summarizes "Systemic School Reform," by Marshall S. Smith and Jennifer O'Day,[1] which appears in full in *The Politics of Curriculum and Testing*, edited by Susan Fuhrman and Betty Malen (Falmer 1991).

"Systemic School Reform" is an analytic essay which draws on research conducted by CPRE and others about the effectiveness of current education policies. The author also looked at developing policy systems in a number of states. Smith and O'Day propose a design for a systemic state structure that supports school-site efforts to improve classroom instruction and learning. The structure would be based on clear and challenging standards for student learning; policy components would be tied to the standards and reinforce one another in providing guidance to schools and teachers about instruction.

In a manner similar to the strategy proposed by "Systemic School Reform," a number of states are coordinating various policies to send coherent messages to schools about instructional goals. California, for example, has developed curriculum frameworks that promote problem-solving and complex thinking. Assessments of student performance tied to the frameworks are being developed and phased in. California's practice of statewide textbook adoption makes it possible to assure that grades and textbooks conform to the state's content goals. The state is also beginning to tie staff development efforts to the content frameworks.

Similarly, Connecticut is developing new state-of-the-art assessments tied to a common core of learning. New York's Regents Testing System provides a mechanism of reinforcing content goals with assessments. Kentucky and Vermont also appear to be moving in the direction of coherent instructional guidance.

These developing policy systems raise many questions. How is consensus within states about content goals developed and sustained? How detailed are the curriculum guidance policies and what room do they leave for school flexibility? How do the systems evolve over time to incorporate new knowledge, especially in rapidly developing fields like student and teacher assessment? How are they implemented by schools and teachers? How do these policies accommodate the diverse needs of students, schools and communities? Are the messages sent by policy reinforced by families, communities, employers and colleges?

These questions and the analytic foundation provided by "Systemic School Reform" underlie a number of studies CPRE is conducting. We will report our findings in subsequent briefs about systemic reform efforts. In the interim, we hope this brief is useful to policymakers and educators thinking about the relationship between state policy structures and school-based improvement.

This brief follows the general organization of "Systemic School Reform," which begins with several observations about policy and school-level success, examines current barriers to school improvement, and then sketches out a strategy to improve the quality of instruction and learning. A sidebar on page 3 of this brief deals with the relationship between the strategy and two important issues: teacher professionalism and educational equity.

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[1] Marshall S. Smith is dean of the School of Education at Stanford University and a member of the Consortium for Policy Research in Education (CPRE) Management Committee. Jennifer O'Day is a doctoral student at Stanford and a research assistant at CPRE.

CPRE CONSORTIUM FOR POLICY RESEARCH IN EDUCATION

RB-06-4/91

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Successful Schools and Educational Policy

For the last 10 years, education reform has been at the top of the nation's agenda. However, while many individual schools in school districts of all sizes and types made remarkable progress, the system as a whole did not improve. In fact, the decade ended with little evidence of meaningful gains in learning (Mullis and Jenkins 1990) and heightened concern about the productivity of education and of the nation as a whole.

Many analysts attribute the meager results to the very nature of reform efforts in the early 1980s, which they characterize as "top down" and "more of the same." These efforts included longer school days; increased requirements for graduation from high school; higher standards for teachers; and more testing for students— focusing primarily on competence in basic skills. These reforms did little to change the content of instruction, directly involve teachers in the reform process, or alter the reigning notions of teaching and learning (Cohen 1990; Carnegie Forum 1986; David et al. 1990).

Largely in response to these deficiencies, a "second wave" of reform rhetoric began building in the mid-to-late-1980s calling for a fundamental rethinking and restructuring of schooling, not a bolstering of the existing system. The key concepts of this second wave are decentralization, professionalization and a bottom-up process with the school as the basic unit of change.

The rhetoric often points to characteristics of successful schools suggested by both research and common sense: a staff of enthusiastic and caring teachers who have mastered both subject matter and a variety of pedagogies for teaching it; a well-organized, challenging curriculum, integrated across grade levels and appropriate for students of diverse experiences, cultures and learning styles; a high level of teacher and student engagement in the educational mission of the school; and ample opportunity for parents to support and participate in the education of their children. Most of the second wave reforms seek to move schools toward this or similar images of "success" by placing authority in the hands of school personnel.

While the full effects of many restructuring reforms are yet to be seen, it is not too soon to see that a school-by-school approach is not likely to result in substantial change of the type needed in nearly all schools. Why not? What makes it so difficult to generalize success in our educational system and why are **successful schools so exceptional and vulnerable? Two major factors provide some of the answers:**

1. Our educational system lacks coherence.
2. A basic skills emphasis still pervades both policy and practice.

Lack of Coherence in the Educational System. Our complex, multilevel governance structure, with a number of separately constituted centers of authority at each level, frustrates purposeful coordination. The policy generation machines at each level and within each level have independent timelines, political interests, multiple and changing special interest groups, and few incentives to spend the time and energy to coordinate their efforts. As a result, policies compete, overlap and often conflict.

Over the last 10 years, policy fragmentation has worsened. Education's political visibility put a premium on distinctive policy, which generates political credit for the author, over policy integration. The unprecedented volume of policy activity–at all levels of government[2]-heightened the likelihood that policies would not be integrated. Even policies emanating from a single level, the state, sent conflicting signals. For example, entry-level standards for teachers were raised at the same time loopholes to address shortages were created (Darling-Hammond and Berry 1988; AACTE 1985; Sykes 1990). Further, states developed K-12 curriculum policies and teacher professional development policies on parallel, non-intersecting tracks. It was not uncommon, for example, for state mandated or recommended teacher evaluation instruments to ignore content goals for students.

Policymaking frequently exhibits a "project" mentality, whereby each problem is addressed with a distinct special program. A new classroom management system, an inservice day on the "left and right brain," a new laboratory filled with computers but little appropriate software, a tougher attendance policy, a new evaluation and accountability policy, are all familiar concepts or "solutions" to the nation's teachers. Some efforts may be very promising for as long as they last, but most are short-lived "projects" to be replaced by a different "concept," a new panacea. Few leave much of a lasting trace.

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[2] See Darling-Hammond and Berry (1988), Firestone, Fuhrman and Kirst (1989), and Coley and Goertz (1990) for reviews of state-level policy activity. For discussions of activity at the local and national levels respectively, see Fuhrman and Elmore (1990) and Smith, O'Day and Cohen (1990).

Policy fragmentation is a source of significant dissatisfaction to school personnel who feel great responsibility for educational improvement but frustration over the mixed signals and the complex administrative requirements that attend individual programs. A recent Education Commission of the States survey of state and local leaders in 11 states found that "the variety of reforms and not knowing which works sends confusing messages to school leaders and impedes the will to change" (ECS 1990, 1). As a result, school officials may ignore or subvert some policies. Dedicated and well-meaning school personnel find that the array of mandates, guidelines, incentives, sanctions and programs drain their energies from serious school improvement.

An Emphasis on Basic Skills. Neither the first or second wave reforms have altered on a broad scale the inadequate models of teaching and learning that currently define the content and pedagogy of American education.

For all the effort expended in reform, the processes and content of instruction in most public school classrooms of today are little different from what they were in 1980 or 1970, containing little depth or coherence, emphasizing isolated facts and "basic skills" over opportunities to analyze and solve problems (Cohen 1989, 1990, 1991; Cuban 1990).

Some state policies of the early 1980s intentionally built on the "back to basics" emphasis that began in the late 1960s. For example, states instituted minimal competency tests that focus on low-level skills and standards and mandated or encouraged the use of such tests as criteria for promotion and graduation. Other statewide policies had the same effect without such purposeful intent. For example, accountability systems attached more and more consequences to scores on standardized tests that emphasize broad coverage of unconnected facts and the ability to quickly find the one, right answer to a series of unrelated, multiple choice, limited time-span items. Most "first wave" reforms simply "intensified" current practice (Firestone, Fuhrman and Kirst 1989), emphasizing quantity in terms of numbers of courses or length of school day, rather than quality.

Systemic Reform and Two Key Issues

Teacher Professionalism

A common criticism of state curricular reforms is that they diminish the sense of professionalism, and, therefore, the effectiveness of teachers by restricting their autonomy and authority to control the content of instruction in their classroom (McNeil 1986; Sykes 1990). The reforms proposed in "Systemic School Reform" would focus on core conceptions of knowledge and skills to be acquired over several years of schooling; they would not spell out detailed curricula that might stifle teacher creativity.

Moreover, part of the power of a coherent system is that the knowledge and skills in the state content frameworks would provide a basis for "expert knowledge" as well. The frameworks would define fields of knowledge that competent professionals would command. Mastering the content and how to teach it would truly "empower" teachers, setting them apart from almost everyone in society by virtue of their sophisticated knowledge base, and giving them a common basis for professional dialogue. In addition, teachers and other subject-matter experts would provide the professional expertise necessary to develop, refine and update the state curriculum frameworks.

Educational Equity

Exclusive reliance on school-based change is likely to disadvantage minorities and the poor. Districts and schools with large numbers of such students often have less discretionary money to stimulate reform and more day-to-day problems that drain administrative energy. A systemic state reform strategy would insure that changes toward newer conceptions of curriculum and instruction are available to all groups, more or less equally. Local discretion and professional judgment within the structure of common curricular frameworks would allow teachers the flexibility to meet the varying needs of their particular students and still hold them to common goals for all children.

Unless curricular reforms are buttressed by a coherent state system that links teacher training, teacher certification, the curriculum and testing together into a structure within which we can legitimately hold schools accountable, we will surely enlarge the differences that continue to exist between the quality of instruction available to rich and poor, minority and majority students.

Many restructuring efforts speak of complex problem-solving and higher-order thinking but focus primarily on site-based management, shared decision-making and professional collaboration. While important elements of the change process, alone they will not produce the kinds of changes in content and pedagogy that appear critical to our national well-being (Fuhrman, Clune and Elmore 1988; Elmore and Associates 1990; Clune 1991). Even more importantly, the policy system does not provide support to teachers and other school-level reformers for significant improvements in teaching and learning.

The Current System and Barriers to Change

Fragmented authority structures and multiple short-term and often conflicting goals and policies provide little support for school improvement. Smith and O'Day examine how major components of educational policy reflect, and in fact reinforce, the incoherence of the system, inhibiting change efforts.

Teachers are not prepared with the kinds of knowledge and skills required if schools are to change to deliver more challenging curriculum. The disjuncture between teacher knowledge and teaching practice begins with the entrenched condition of teaching in the nation's postsecondary system. Prospective teachers learn the content of arts and science disciplines in courses outside of schools of education that are generally taught in a lecture style, fact-oriented fashion.

In many large colleges and universities, courses in mathematics, science and history typically have examinations with short-answer, machine-gradable questions, while literature courses require papers of only a page or two. Licensing and certification systems focus on evidence of adequate credit accumulation in content areas; current tests of prospective teachers typically represent only weak attempts to ensure that prospective teachers have the knowledge of content and skill in pedagogy to do an effective job in the classroom (Smith and O'Day 1988).

The condition of inservice professional development is little better than that of preservice training. Inservice systems are built primarily on graduate credit requirements for continuing certification and salary increments. Because of a lack of coordination between higher education institutions and K-12 school systems, teachers typically take courses badly coordinated with the demands of their jobs. The content of these courses often depends more on the intersection of the teacher's schedule with the interests of professors in local institutions than on the needs of K-12 students.

Professional development experiences organized by schools or districts are generally more closely attuned to the specific needs of schools but limited in scope and duration, frequently lasting a day or less only once or twice a year. Only rarely are they sufficient to help teachers make major changes in their approach to instruction. Furthermore, the federal, state and local budgets for inservice professional development are small and extremely vulnerable to budgetary constraints (Guskey 1986; Little et al. 1987; McLaughlin 1990).

Current curricula and instructional materials also provide little support for improvements in content and pedagogy. Teachers and students alike find the materials uninteresting and unimaginative. Both students and their future employers complain that school learning bears no connection to real life experience or problems.

The fragmented policy system contributes to the poor quality of curriculum materials. Diffuse authority structures and multiple goals within the system foster mediocrity and conservatism both in the publishers' supply of curricular materials and in the demand generated by local educators. Inconsistent policy results in textbooks that merely "mention" topic after topic, covering each so superficially that the main points and connections among them are often incomprehensible to the student (Tyson-Bernstein 1988; Newmann 1988).

Educators must respond to the same conflicting demands and lack of common goals as the publishers, leading many to unintentionally support and perpetuate mediocrity in content by choosing materials that are comfortable (familiar), easy to work with pedagogically (fragmented, factual, simple), and that lead to the most manageable classrooms (again, fragmented, factual, easy to monitor).

Indeed, as ironic as it may seem, this situation has actually contributed to the development of a common instructional practice and a common basic skills curriculum. The emphasis on basic skills has contributed to a significant educational success—considerable progress since 1980 in closing the gap between minority and

white students on measures of national achievement (Smith and O'Day 1991). But basic skills are not sufficient to meet employers' needs in the future. Nor is a democratic society well served by schools focusing on narrow conceptions of knowledge.

Furthermore, rigid hierarchical models of learning, where basic skills are presumed to be the foundation of more complex skills, are outmoded and inconsistent with what we know about how people learn. According to Resnick (1988, 45), the most important single message of recent cognitive research is that:

> Complex thinking processes—elaborating the given material, making inferences beyond what is explicitly presented, building adequate representations, analyzing and constructing relationships—are involved in the most elementary mental activities... all of this implies that no sharp separation between "basic" and "higher order" skills can be made.

While educators and observers have recognized and written extensively about the inadequacy of rigid models of learning and the curricula they engender, the fragmentation of the policy system makes substantial, widespread change in instructional practice and the curriculum virtually impossible.

Without a supportive policy structure, innovations emerge but soon die out. Teachers or schools experiment with particularly creative and promising curricula and instructional practices, often with considerable success. But most of these innovations become marginalized or disappear altogether. Programs developed in one sector (e.g., curriculum) are rarely linked to the extensive necessary changes in other sectors (e.g., teacher professional development). School-based innovations are frustrated by policies sending conflicting signals. For example, school efforts to introduce more challenging curricula can be stymied by district or state assessments focusing on basic skills.

Even if some schools succeed in developing and sustaining curricular and pedagogical improvements, the lack of system support makes it virtually impossible to generalize changes from a small number of initially active schools to the well over 100,000 educational institutions across the country. Furthermore, the schools most likely to innovate are often the ones serving the most advantaged; the schools serving less-advantaged children frequently get left behind.

The need to improve (beyond basic skills) as an entire nation, concerns about equitable improvement for all, growing frustration with policy fragmentation, and increasing understanding about how children learn all signal that the next step in reform needs to be system-wide encouragement of ambitious, high quality outcomes. Smith and O'Day argue that we need to put the pieces of reform together in a coherent system that combines the vitality and creativity of bottom-up change at the school site with an enabling and supportive structure at more centralized levels of the system.

A Strategy for Systemic Reform

Both approaches to reform seen in the 1980s, top-down and bottom- up, are inadequate when pursued in isolation. Smith and O'Day propose a strategy for system-wide improvement that combines both approaches in a supportive policy structure that can provide direction for school-level changes and make such changes more easily adaptable to different situations. The strategy includes three major components: a unifying vision and goals, a coherent instructional guidance system, and a restructured governance system.

The policy structure is a function of state leadership. If we wish to influence more than a few schools or districts at a time, the state is a critical actor. States are in a unique position to provide coherent leadership, resources and support to the reform efforts in schools. Not only do they have constitutional responsibility for education, states are the only level that can influence all parts of the K-12 system and affect the way in which state systems of higher education might operate to help the K-12 system.

States also represent markets of sufficient size to leverage improvement in aspects of education that are outside of the system itself, such as textbook and materials development. Furthermore, states have improved in capacity for educational policymaking and have gradually amassed greater authority and responsibility over their educational systems. Increasingly, concerns about the economy and productivity of the state provide incentives for policymakers to exert educational leadership.

A Unifying Vision and Goals. To provide coherent direction for educational reform throughout the system, a state must have a common vision of what schools should be like. The vision should be informed by underlying values concerning intellectually stimulating and engaging education for *all* students. Broad conceptions and values, however, will not be enough. We need goals that can be communicated and measured if we are to mobilize the political support necessary over time.

Some goals might address desired changes in the nature or quality of educational inputs, such as the quality of the teaching force. The most powerful goals, however, would be those related to students. Statewide student outcome goals should focus primarily on the core functions of the system; that is, on teaching and learning. And, to meet the demands of the future, they must go well beyond the "basic skills" goals of the 1960s, 1970s and early 1980s. They must challenge the system to prepare our youth to grapple thoughtfully with those problems that defy alogrithmic solutions and to be skilled and confident learners in school and later on. Moreover, the goals and indicators must address not only the average level of opportunity and student achievement in the state but also the variation. Justice requires that the goals of the state promote equality as well as quality.

A Coherent System of Instructional Guidance. The first step in developing a coherent system of instructional guidance is to work toward agreement on a core body of challenging and engaging knowledge, skills and problem-solving capacities as goals for all students. All state policies guiding instruction would be based on these goals, forming a consistent, supportive policy structure for school improvement. Overcoming the fragmentation of the system requires coordination of the key elements affecting instruction: curriculum and curricular materials, preservice and inservice teacher training, and assessment.

Curriculum Frameworks

The basic drivers of the system would be curriculum frameworks which set out the best thinking in the field about the knowledge, processes and skills students need to know in each core curriculum area. The frameworks would emphasize depth of understanding, knowledge construction through analysis and synthesis of real life problems, hands-on experiences, and the integration of content and pedagogy. Highly qualified teams of teachers and disciplinary experts would develop the frameworks and participate in continual updating and review.

It is important to distinguish the notion of core curriculum frameworks from the more specific curricula actually taught in the schools and classrooms. The frameworks would set out themes, topics and objectives in sufficiently long-range chunks (e.g., four-year blocks) to allow maximum flexibility and creativity at the local level while establishing clear direction for the system. California is illustrative of a state that has already developed quite progressive curricular frameworks in a number of areas. They reflect the problem-solving and higher-order thinking orientation of recent reform reports (see for example, NCTM 1989; AAAS 1989), but do not detail a day-to-day, week-to-week, or even a month-to-month curriculum for teachers to follow. Instead, for the most part, they describe outcomes expected at the end of certain periods of time, such as the 4th, 8th and 11th grades.

The frameworks would provide structure within which to organize the other important educational components. Teacher professional development programs, both preservice and inservice; teacher licensing programs; textbook and curricular materials; and testing systems should all reflect the content of the frameworks. For the frameworks to provide the type of guidance necessary to improve instruction, they must be of the highest quality possible. Only if this condition is met will they command the respect and enthusiasm of capable teachers. Furthermore, local school personnel must have freedom within the frameworks to interpret and implement instructional strategies that most effectively meet the needs of their students.

Curricular Materials

Schools must have the ultimate authority to select and/or revise and develop curricular materials. However, the state has both the responsibility and the potential leverage to assure that there is an adequate supply of

high quality textbooks and other materials that are in line with both the letter and the spirit of the frameworks, so that teachers do not have to reinvent the wheel for every subject and every grade. States could establish a statewide adoption system that emphasizes both quality and coordination with the frameworks and stimulate private and local school development of innovative ways of teaching the core concepts, including software.

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Professional Development

States must ensure that both new and practicing teachers have the content knowledge and instructional skills required to teach the content of the frameworks. Although there has been much recent ferment about improving teacher education, no major national reform effort has deliberately addressed the substantive needs of teachers beyond listing general course and degree requirements.

Given the historic independence of higher education from K-12 education, the main leverage for improving preservice education is likely to come from the state's authority to screen and credential teachers rather than from regulation of colleges and universities. Assuring that prospective teachers have the knowledge and capacity to teach well the content in state curriculum frameworks probably requires that states develop strong, progressive performance assessments based on the K-12 content objectives. Faculties in both Schools of Arts and Sciences and of Education would likely alter their courses and perhaps even their own pedagogical approaches to help insure that their graduates succeed on the new state licensing examinations.

Inservice professional development must be a key component of the overall instructional guidance system as most current teachers will remain on the job during and after the implementation of the new frameworks. States could support opportunities for both individual teachers and groups of teachers to develop and refine expertise in the content of the state frameworks and in effective pedagogical approaches. Policymakers could influence the supply of programs by allocating funds directly into program development or by providing incentives for independent organizations, such as universities or libraries, and for subunits, districts and schools, to develop programs. Demand for professional development may be influenced by continuing licensure requirements and accountability systems that encourage teachers to be knowledgeable in relevant areas of the frameworks and in effective pedagogy.

Accountability Assessment

A key component of a coherent instructional guidance system is a high quality assessment system based on the state curriculum frameworks. The assessments should monitor progress toward achievement goals for accountability and stimulate and support superior instruction, functions that cannot be served by most current assessment systems. Most places now use standardized norm-referenced tests which are purposefully divorced from the curricula of the schools and cannot measure what schools are supposed to teach.

New assessment instruments tied to state content frameworks would replace such tests, and, to avoid testing overload, they should be given infrequently. Examinations at three levels—say at the 4th, 8th and 11th grades— would provide adequate information for monitoring and at the same time provide teachers and schools a clear idea of expected outcomes. In addition, allowing for choice among examination questions, as in the current Advanced Placement exams, would allow for variation in school program, teacher expertise and student interest.

Assessment instruments require attention and support commensurate with the important role they play in the system. While current standardized and minimum competency tests reinforce teaching toward an emphasis on isolated facts and basic skills, state-of-the-art examinations based on well-designed curriculum frameworks could help encourage instruction toward higher-level goal such as depth of knowledge, complex thinking, and ability to respond to problems and produce results.

In summary, curricular materials, teacher professional development, and assessment systems based on high-quality curriculum frameworks would provide the kind of guidance to schools that would support improvements in content and pedagogy. Coordination of these various policies transforms them from a set of unrelated, or, even worse, conflicting, messages to schools into a coherent system of instructional guidance. Tying these policies to challenging content outcomes provides leadership for classroom innovations designed to enhance teaching and learning.

A Restructured Governance System. The proposal for a coherent state system of instructional guidance comes in the midst of a long-standing but increasingly intense debate about the compatibility of centralized policy decisions on the one hand and professional discretion on the other. In fact, much of the current literature on school improvement, especially the restructuring literature, assumes that centralized policies regarding curriculum and instruction serve to undermine school personnel's efforts to improve. Smith and O'Day argue that negative effects of centralized policies relate in large measure to their fragmentation and their encouragement, deliberate or inadvertent, of traditional and no longer productive, narrow conceptions of teaching and learning.

The strategy outlined above proposes a change in both the coherence and goals of state policies so that they may set the conditions under which teacher empowerment, professionalization, and school-site management may flourish. The state would provide a clear picture of long-range goals coordinated across the various instruments of state policy but avoid dictating school curricula and activities. State activities would focus on the challenging tasks of developing consensus about learning goals, crafting policies that consistently reflect and reinforce the goals and providing support to schools in reaching the goals. School-level personnel would develop specific curricula, programs and pedagogies designed to achieve the goals.

Establishing divisions of authority that draw on the strengths of each level of government requires a rethinking of traditional responsibilities, a redesign of governance. Since the major responsibilities of the state in constructing a coherent guidance system have already been described, the following sections focus on the school, upon which the success of this enterprise ultimately depends, and the district, which must offer the school maximum support.

Governance at the School Building Level

Schools obviously have many responsibilities, but with respect to achievement on the state content goals, the school's primary job is to develop a stimulating, supportive, and creative environment to maximize achievement. The restructuring literature and older literature on effective schools suggest three practical ingredients for instructional success: a staff of well-trained professionals who could use their knowledge and experience to follow the best practices appropriate to their students to meet state goals; an internal governance structure that grants those closest to students, the teachers, important decision-making roles and time for collaborative planning and reflective and professional development activities; and hardware and resources necessary for productive, professional workplaces (Purkey and Smith 1983, 1985; Cohen 1983; Elmore and Associates 1990).

New Book Examines Curriculum and Accountability Policies

"Systemic School Reform," is just one chapter of a new book that looks at some of the most crucial issues in education today.

The book is organized into three sections. Section 1 describes state-level changes in curriculum policy and assesses the initial impacts of policy changes at different levels of the system. Section 2 focuses on changes in testing and accountability provisions and explores some of the early results of those changes. Section 3 discusses systemic reform of instructional guidance both in this country and abroad.

Four chapters draw directly from research conducted by CPRE:*

"Graduation vs. Education: Reform Effect for At-Risk Youth,"
Janice H. Patterson

"Educational Policy in a Situation of Uncertainty; Or, How to Put Eggs in Different Baskets"
William H. Clune

"Systemic School Reform"
Marshall S. Smith and Jennifer O'Day

"Reforming the Curriculum: Will Empowerment Policies Replace Control?"
Andrew C. Porter, Doug A. Archbald, and Alexander K. Tyree, Jr.

The Politics of Curriculum and Testing:
The 1990 Yearbook of the Politics of Education Association
Edited by Susan H. Fuhrman and Betty Malen
1991, 288 pp., hardcover $55 – softcover $25.50

Available from: E. Streisand, Falmer Press, 1900 Frost Road, Suite 101, Bristol, PA 19007-1598; phone, (215) 785-5800.

*Reprints of these four chapters are available directly from CPRE. Send $4.50 for each title ordered to: CPRE, Eagleton Institute of Politics, Rutgers University, New Brunswick, NJ 08901.

These ingredients have strong governance implications for schools. They suggest that schools need sufficient autonomy to shape their programs to meet local conditions and the needs of their students, and that the selection of staff, inservice strategies, curriculum (within the state guidelines) and pedagogies should be done at the school site. They also underscore the importance of teacher participation in school decision making and the need for teachers to have time and facilities for collaborative activities in service of improved instruction. Such school-based changes are the focus of many current restructuring experiments. Smith and O'Day' argue that, while these elements are fundamental to improvement, without the changes in the policy structure proposed previously, they will not lead to meaningful or sustained change in teaching and learning.

Governance at the School-District Level

The main responsibility of the local district would be to provide resources and a supportive environment for the schools. Districts should examine aspects of their operations, including central bureaucracies and rules intended to standardize practice, that might inhibit innovative and effective school-based instructional approaches. Districts must also assure equitable distribution and use of common and base budget resources across schools, and administer special program resources in ways that maximize opportunities for needy children.

Districts may also deem it appropriate to establish their own long- range goals for improvements in student achievement and other areas that embellish the state goals— progressive districts might add such things as student participation and local service goals. Such long-term directions should guide board and superintendent activities, enabling them to eschew short-term "projects" and disruption in favor of steady nourishment to schools. One example of this might be a two- or three-year budget. Unions could assist by avoiding or waiving contract provisions which require standardized practice and inhibit the flexibility schools need to maximize achievement on the content goals.

These changes imply changing district operations so they focus on providing support to schools to reach the content goals. Central bureaucracies would shift from enforcement of requirements about practice to activities designed to assist schools improve instruction. Such a change would be greatly facilitated by a reform of state policy away from separate projects, each accompanied by a set of regulations and requiring a discrete administrative structure at the district level, toward coherent instructional guidance.

Conclusion

The strategy outlined by Smith and O'Day calls for combining systemic state-initiated reform and school-based reform (restructuring) to create something with considerably more chance of succeeding than either type of reform carried out independently. The structure provided by coherent state leadership could enhance the potential of school-based strategies.

For example, under various approaches to parental choice, the state curriculum frameworks would establish a protective structure that would help ensure that all schools were attempting to provide a challenging and progressive curriculum. Similarly, state examinations based on the curriculum frameworks would provide valid data about student outcomes to help parents and students make choices.

Schools could vary considerably on specific curricula, instructional strategies, extracurricular activities and other factors on which choices could be based.

Implementing a systemic reform strategy would require leadership and long-term perspectives on the part of policymakers as well as the support and involvement of professionals who would participate in developing the state instructional guidance system and take responsibility for high-quality programming at the school level. All participants, as well as the public, would understand that such an effort is not another "wave" of reform, another short-term strategy. In essence, Smith and O'Day have proposed a strategy for combining the "waves" of reform into a long-term improvement effort, a strategy for putting coherence and direction into the state reforms and content into the restructuring movement. ■

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Bottom-Up Reform

- Bottom-up reform is a key element of state improvement plans because it is the most effective way of bringing high aspirations to life: only when communities and their schools grapple with the challenges of serving children more effectively will we see the creativity and commitment that this reform will demand.
- Success will depend on flexibility from the state level, coupled with consistent encouragement, support, and assistance for those developing and carrying out local action plans.

While every school will share a common aim under Goals 2000—providing a world-class education to every child—the methods will be as diverse as the schools and neighborhoods of this nation. This diversity of approaches will flourish because a key principle of Goals 2000 is that of bottom-up reform, of community-based solutions to local educational needs.

What is bottom-up reform?

Bottom-up reform is educational improvement initiated in communities, schools, and classrooms, fueled by the energy and ideas of teachers, parents, school administrators and boards, students, parents, and community members. It is reform grounded in the aspirations and practical realities of the local school community. It depends on a supportive environment from the "top," in the form of policies that set high expectations and provide help with reform.

The philosophy of bottom-up reform is that the people doing the work of teaching and learning and others working directly with students and schools must be the ones who plan and carry out improvements in the way that work is done. Bottom-up reforms emphasize creating the conditions in which teachers can continually learn, apply, and refine new approaches. These reforms help parents become more involved in their children's education at home and in the schools. They connect students with other caring adults in the community, in local business, in colleges, and in other agencies.

Goals 2000 embraces several aspects of bottom-up reform:

- Individual schools will develop and implement reform plans that they initiate, with support from the funds that flow to local districts;
- Local improvement or action plans at the district level will emerge from a broad-based planning process in which educators, business, parents, and the public participate;
- In developing the state plan for Goals 2000, the state planning group will draw on the ideas of districts and schools that have successfully improved student performance;
- Teachers and administrators will have access to professional development that helps them help students achieve new standards; and
- Accountability will be based on improving student learning, not simply following regulations.

This paper is offered to stimulate discussion and thinking in one of the key components to be included in Goals 2000: Educate America Act plans. We welcome revisions and suggestions for examples of effective state and local practices for future editions. Please send your comments to: Goals 2000; U.S. Department of Education; 400 Maryland Avenue, SW; Washington, DC 20202.

Why is bottom-up reform important in the Goals 2000 plan?

Bottom-up reform is an important element of Goals 2000 because decades of research on school change have taught us that top-down pronouncements are simply not enough to make reform happen. Schools, like other organizations, have an impressive capacity to ignore or deflect efforts to tell them what to do. In contrast, local teachers, parents, school administrators, and community reformers develop a commitment to the approaches they invent. And the professionals now working in schools will realize ambitious new standards of curriculum content and student performance only when they have had enough time and learning opportunities to enable them to change their own practice. Effective reform efforts combine the strengths of top-down and bottom-up approaches. They include clear direction from the state and school district about *what* schools must accomplish, buttressed with support for local exploration of new *ways* to achieve these aims.

Parents and business and community leaders, along with educators, can help develop mutually agreed-upon action plans to improve their schools and student learning. This builds ownership for the goals and new standards among educators and parent and community leaders. Having the educators and parents working together on a community-based plan of action reinforces the need to improve.

School professionals assimilate new knowledge by working with it and using it to solve real problems. They transform isolated pieces of information and skill by incorporating them into a broader, flexible professional repertoire. With increased opportunities to hone these skills, they will develop and implement increasingly effective reforms.

In schools undergoing bottom-up reform, teachers exchange ideas with each other about their school goals, their students' academic needs, ways of communicating with parents, curriculum, and instruction. They watch each other at work. They analyze their own practice and that of their colleagues. They try out new materials and techniques and evaluate the results. Through this process, change and reform take place. Without this process, schools and teachers may absorb new buzzwords, but they do not act differently.

The process of reform requires both leadership and management. One or more leaders in the school must articulate and reinforce a vision of the school's aspirations. Reform also requires managers who can solve practical problems and assemble the resources that support change—providing sufficient help and support to carry out changes in ways that best meet local needs. The managers engaged in reform can draw on resources from outside the school, such as the commitment and priorities of superintendents, the know-how of central-office staff and members of the community and business, and the programmatic dollars that come from local, state, and federal sources—many of which can be used far more flexibly than most recipients now imagine.

Furthermore, if the effects of school reform are to be sustained, schools must develop the capacity to make continual improvements. This means monitoring their own effectiveness, recognizing areas where improvement is needed, and mobilizing resources from inside and outside the building to make the necessary improvements.

The conditions for change at the school level—collaboration and learning among teachers and parents, community-school partnerships, principal leadership and management skills, and data to support continual self-monitoring—will flourish only with support from state and local policy. Actions at the policy level that can effectively support bottom-up reform include:

- Clearly stating the expectation that every school will engage in a serious re-examination and reform and improvement of its work;
- Building a strong team to help lead the improvement process, involving educators, parents, citizens, and the business and higher education communities;
- Building time for school-based planning and professional development into the school day and year, among educators and between educators and parent and community leaders;
- Supporting professional networks (including electronic networks) and other learning vehicles such as summer institutes for principals, teachers, and other professionals—and supporting visits to observe firsthand successful strategies that have improved learning and helped similar schools reach their high goals; and

- Reviewing accountability structures to ensure that they focus on important educational results and do not unnecessarily constrain schools with procedural requirements.

It is also important to remember that planning and professional development are manifestations, not causes, of bottom-up reform. Many schools have developed mission statements and improvement plans that sit in the principal's desk drawer, unconnected to the ongoing work of the school. Many times parents and citizen leaders sign off on a plan but have had little ownership in its development so have little investment in its implementation. Professional development in many schools takes the form of training workshops that, at most, impart awareness of new techniques rather than strengthening the tools of educational problem solving and transformation. Mandating planning and professional development will not contribute to reform unless schools have ongoing encouragement, support, technical assistance, and networks to help them address their needs to help many more students meet higher standards.

What are examples of promising strategies and programs?

Many schools, districts, states, and practitioner networks illustrate the promise of bottom-up reform. Yet it would be a mistake to view these examples as models to be replicated. The very premise of bottom-up reform is that each school community set its own agenda toward higher student performance. While outside models can provide both inspiration and practical tips based on lessons learned, adopting a model is no shortcut to success. At best, a model gives the school community a concrete framework for its aspirations, benchmarks for its progress, and a broader professional network to draw on. With this caution in mind, we can review some ongoing experiences with bottom-up reform. These examples underscore the importance of school and community resources for staff development as an ingredient in reform; they also illustrate how mandates and support from the top can be translated into grassroots change.

Jefferson County Public Schools
Louisville, Kentucky

The school-based planning and professional development opportunities in Jefferson County, Kentucky, demonstrate what it takes to build bottom-up reform. Several related initiatives draw on outside resources to enable schools to take charge of their own reforms. Most of the county's schools practice shared decisionmaking, which they call site-based decisionmaking. They use resources offered by the Jefferson County Public Schools Gheens Professional Development Academy, the University of Louisville, and the business community in learning the skills and knowledge this model requires. Many of the district's 800 business partners have included school staff members in company-sponsored Total Quality Management training programs and provided consulting services to those adjusting the model to fit school conditions. Eleven high schools have joined the Coalition of Essential Schools and begun to organize their programs around the Coalition's principles. Through the Center for the Collaborative Advancement of the Teaching Profession at the University of Louisville, a group of professors works with teachers on developing skills in conceptually oriented math instruction and in developing an algebra curriculum accessible to previously low-achieving students. Teachers working on doctorates can win appointments to the Jefferson County Public Schools Gheens Professional Development Academy as clinical instructors, with salaries paid jointly by the university and the school system. They provide assistance and training in several kinds of restructuring work, including site-based decisionmaking, nongraded primary schools, and development of Essential Schools programs.

El Paso Independent School District
El Paso, Texas

In keeping with state mandates, El Paso has initiated plans for shifting school management to a committee of elected teachers, administrators, parents, and community members at each school. Each Campus Improvement Committee develops and monitors an instruction plan that coordinates all activities at the school, including Chapter 1 services. The overall plan for restructuring is based on the assumption that a smooth transition to effective site-based decisionmaking depends on early, intensive, and ongoing training in the knowledge and skills of shared decisionmaking. To support restructuring, the superintendent raised staff development to the organizational level of a division, made its head an assistant superintendent, and instigated the purchase of a new building to function as a staff development center. Employee representatives will propose a "career curriculum" that promotes ongoing professional development. A new leadership academy will provide opportunities for aspiring administrators.

Edna McConnell Clark Foundation Middle-School Reform

A recent report describes progress in 12 middle schools undertaking reform in 5 cities—Baltimore, Milwaukee, San Diego, Louisville, and Oakland. The guiding principle of the initiative is systemic change for schools; its imperatives are "high expectations, high content, and high support." These very high-poverty schools have aimed to prepare their students for college preparatory courses in high school through substantial changes in curriculum and instruction. The foundation is candid about both the accomplishments and the setbacks in these schools. The lessons learned include the following:

> If interventions push too fast, are incongruent with what schools need or perceive they need, or if outsiders overload schools with paperwork and classroom interruptions, they invite resistance. Particularly at the beginning of the initiative, many schools felt obligated and overwhelmed with Clark program ideas, until they developed overall plans and learned to select what they needed. . . . Persistence, tempered with sensitivity, is needed. Partnerships, not pronouncements, are needed.

National Center for Innovation National Education Association

A multifaceted initiative, the National Center for Innovation supports several projects that facilitate educational reform. The Mastery in Learning Consortium promotes comprehensive reform in individual schools. The Learning Laboratories explore ways that school districts can implement comprehensive school reform. The Teacher Education Initiative works with colleges and universities to promote comprehensive reform for inservice and preservice professionals. The electronic School Renewal Network connects participants in the Centers' numerous initiatives with each other and with collaborating researchers. The network provides access to research, interaction between researchers and practitioners, communication about issues, and data gathering and analysis. The Center works with project sites to document and evaluate reform initiatives and to disseminate these findings to the educational community.

Wisconsin Village Partners

Wisconsin's Village Partners program is an alliance of the state's major education-related organizations and largest business group that fosters school reform at the local level. Begun at the initiative of the Wisconsin Education Association and Wisconsin Manufacturing and Commerce, the partnership now includes 12 member organizations representing the Department of Public Instruction, teachers, administrators and principals, postsecondary institutions, parents, and business. Forty-three school district members—serving 30 percent of the state's students—have agreed to take a collaborative approach to school reform in their communities, and send delegations of 10-15 stakeholders to two two-day workshops on school reform sponsored by the partnership. The districts establish advisory committees with representation from all major players in the community to offer guidance and support as local decisionmakers develop new approaches to educating students, governing schools, and involving parents. The collaborative approach has helped communities remove many of the barriers to school reform by, for example, making it easier for schools to get waivers from union contracts and securing employers' cooperation in involving parents in schools.

Where can I go for additional information?

Organizations

The Achievement Council
6030 Wilshire Boulevard, Suite 202
Los Angeles, CA 90036
(213) 487-3194

Edna McConnell Clark Foundation
250 Park Avenue
New York, NY 10177
(212) 986-9118

El Paso Independent School District
Education Unit
6531 Boeing Drive
El Paso, TX 79925
(915) 779-4303

Jefferson County Public Schools
P.O. Box 34020
Louisville, KY 40232-4020
(502) 473-3011

National Center for Innovation
National Education Association
1201 16th Street NW
Washington, DC 20036
(202) 822-7906

Wisconsin Education Association
(608) 276-7711

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Newsletters

Doubts and Certainties, published by the National Education Association, National Center for Innovation. 1201 16th Street NW, Washington, DC 20036-3290. Telephone (202) 822-7783. Fax (202) 822-7987.

Catalyst, published by the Community Renewal Society. 332 South Michigan Ave., Suite 500, Chicago, IL 60604. Telephone (312) 427-4830. Fax (312) 427-6130.

CPRE POLICY BRIEFS
Reporting on issues and research in education policy

Politics and Systemic Education Reform

by Susan Fuhrman

As many as 45 states are involved in a reform movement focusing on ambitious student standards, coordinated policies and support for school-level change. This has been labelled "systemic reform" (e.g., Smith and O'Day 1991). But the idea is greeted by many political observers with skepticism. How can we expect such a rational approach—definition of student learning expectations and the purposeful integration of key policies—from a system that has long made policies incrementally and in a disjointed fashion? (See Lindblom 1959; Wildavsky 1974.)

While many obstacles to systemic reform do exist, some promising efforts indicate that policymakers can enact ambitious goals and support them with coherent, coordinated policies. This brief describes political challenges to systemic reform and explores the conditions under which coherent policymaking might occur. It includes excerpts from "The Politics of Coherence," in Fuhrman, ed. *Designing Coherent Education Policy: Improving the System* (San Francisco: Jossey-Bass 1993). It also draws on two background cases of political structures designed to support education reform: "South Carolina's Business-Education Subcommittee" by Diane Massell and "Kentucky's Prichard Committee" by Jacob Adams.

Political Challenges Facing Systemic School Reform

The concept of systemic school reform, as used in this brief, focuses on the establishment of ambitious expectations for all students. Standards would be set at a high-level, requiring deep understanding of subject matter and sophisticated reasoning ability. Curriculum frameworks laying out important topics and understandings would be the foundation for student assessment, instructional materials, teacher licensing and staff development. In that manner, key policies would send coherent messages about instruction (Cohen and Spillane 1993).

The purpose of a more coherent policy system would be to support and sustain school-based change. To provide schools more flexibility in meeting the needs of their students, higher levels of governance would focus on defining and developing accountability for results and would remove constraints on school practice. Schools would determine the instructional strategies most likely to foster student achievement of outcome goals (Smith and O'Day 1991; CPRE 1991).

All levels of governance—local school districts, states and the federal government—might work to define standards and coordinate key policy instruments. Many districts and states are already making such efforts. And, with the active support of the Clinton Administration, voluntary national standards are

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RB-12-04/94

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being developed in key subjects. Considerations about the politics of systemic reform are therefore relevant to several levels of government. However, this brief focuses primarily on the role of states, since they have both constitutional responsibility for education and the jurisdiction over both pre-collegiate and higher education necessary to achieve policy integration. Conceptions of systemic reform include two important ideas: societal *decision* about student standards and *coordination* of important policy instruments. Yet these ideas face several challenges.

Student Standards

The systemic reform strategy suggests that a decision be made about challenging core expectations for student learning. Right now schools and districts often defer to textbook publishers' Tables of Contents for decisions about which topics to include in curricula and let standardized testing define the skills chidren should learn. Often, neither texts nor tests encourage a focus on high-level skills (Tyson Bernstein 1988; Archbald and Newmann 1988). In fact, in the absence of explicit consensus about outcomes, the system puts a *de facto* emphasis on low-level skills which are familiar and relatively easy to teach.

Furthermore, because clear direction is lacking, the system has no authentic means of judging its progress and no substantive base for resource allocation decisions (Odden 1991). Formulas or traditional expenditure patterns typically drive the allocation of spending increases and cuts. Resources are seldom distributed based on explicit decisions about how money should be used. The system has not yet determined how to use resources effectively in part because the system has yet to determine the outcomes to be effectively achieved (Odden and Massy 1992).

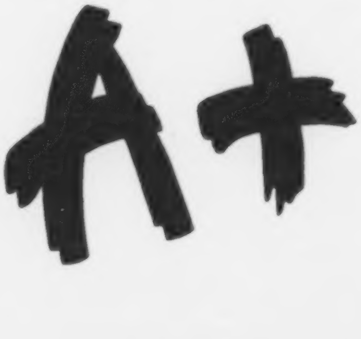
Policymakers have avoided central—for example, state-level—determination of outcome expectations by summoning up the hallowed educational tradition of local control. In fact, deep conflicts over the purposes of education have made policymakers wary of opening goal discussions (Tyack 1976; 1992). In our increasingly diverse society, there are many differences of opinion about what should constitute a core body of content learned by all students. By letting content expectations devolve to the district or school, policymakers can evade such difficult decisions. Furthermore, if, as some analysts assert, society's interest in education lies primarily in credentialling in a way that preserves economic and social inequities, there is little reason to bother with content expectations. Others argue that because knowledge is constructed by individuals in specific contexts, it would be counterproductive to specify knowledge expectations for an entire society, no matter how worthy the expectations.

In the past, educators rarely challenged the status quo—the absence of policy-level outcome expectations. In fact, many have argued strongly against this type of "policy interference" (e.g., Wise 1979; McNeil 1986). For one thing, they were highly skeptical that policymakers could develop standards that were ambitious and challenging with respect to student achievement. Politically determined standards are typically not challenging; rather they tend to be minimal in nature. And, in the absence of consensus about results, standards focus on inputs and processess. These can be criticized for constraining professional judgement and necessary school flexibility.

Coordinated Policies

The systemic reform strategy also proposes that a series of key policies should be aligned with outcome expectations. It suggests departing from the current practice of fashioning a separate program to address each educational problem because the individual projects, no matter how uniquely worthy, seldom reinforce one another and frequently send different, even conflicting, messages to schools. For example, most current teacher certification and evaluation requirements stress generic skills rather than ability to teach the subject-matter content students must know. Programs for students with special needs pull them away from the mainstream curriculum, fragmenting not only their education, but the work of teachers and administrators. Staff development frequently consists of one-shot workshops on "hot" topics that are unrelated to each other or to the fundamental instructional and pedagogical issues teachers face daily.

The rationality of integrated policy based on deliberate goals is at once the appeal and the Achilles' heel of systemic reform. Consensual decision and policy coordination have seemed beyond the capacity of our political system. In fact, it is arguable that our political system functions so as to deliberately thwart decisiveness and coordination.



Impediments to Consensus and Coordination

At least four characteristics of the political system contribute to incoherent policymaking: the fragmented organizational structure; the focus on elections; policy overload; and specialization.

Fragmented System

First, the fragmentation of our political system makes it very difficult for policymakers to coordinate with one another or to develop consensus across all parts. Separate branches of government that check and balance one another exist at each level of government. Each part operates according to its own schedules and rules, its members swayed by incentives related to institutional membership and maintenance rather than the functioning of the entire system. Opportunities to work with policymakers in other institutions do not naturally occur or may require facilitation through the creation of new institutions, further increasing the structural complexity of government.

Educational governance is particularly complex (Cohen 1982). Not only are there three levels of government (federal, state and local) making education policy, but also there are separate structures (e.g., state boards of education) at each level that date from the Progressive era emphasis on isolating education from partisan politics.

Focus on Elections

A second characteristic of our system that thwarts rational policymaking is the emphasis placed on campaigning and election. The "electoral connection," a priority on re-election above policy or institutional improvement goals, is probably most apparent in Congress where livelihood and career depends on staying in. However, as state legislatures become more full-time, and thus more composed of career politicians, "the permanent campaign" is also becoming more characteristic of most state houses (Salmore and Salmore 1990; Rosenthal 1989). Executive branch elected officials face similar imperatives.

Because impressions on constituents take priority, politicians seek ways to distinguish themselves from their colleagues rather than avenues to cooperate in group decisions. They deal in what Mayhew (1974, 54-59) calls "particularized benefits," pork-barrel projects or other "goodies" which particularly help their own constitutencies and are clearly traceable to their originators. They fashion unique, discrete, "sexy" policies to which they can attach their name.

A second consequence of the preeminence of elections is the circumvention of controversial and difficult issues which can upset elements of the electorate. Finally, because of the emphasis on election, politicians are attracted to the type of policies that are most easily used as campaign issues: simple, easily explained policies that can be featured in a "sound bite." Policies with immediate effects and clear benefits are simpler to explain than longer term efforts with more diverse or remote benefits. Subtlety can lose out to flashiness; careful developmental efforts can lose out to quick pushes that have less chance of success because the developmental groundwork was lacking.

Policy Overload

A third characteristic of the system that thwarts coordination is an overload with policy issues. Over the last decade most states made policy on a number of important education issues—like teacher salaries or the nature of student assessment—for the first time. These subjects had generally been left to local educators in the past. But, although states expanded their policy purview, local districts did not constrict their own activities in response. Local districts made more policy as well (Fuhrman and Elmore 1990). When so much is on the plate, each item can get less attention. And, the sheer volume increases the likelihood that policies will tumble out, without any necessary connection to a long-range strategy or to one another.

Specialization

A traditional strategy for managing the complexity that comes with too much work is specialization. It reflects not only the expansion of the governmental role but also the emphasis on election. Specialization creates more arenas in which politicians can claim credit and impress voters. Consequently legislative committees and subcommittees multiply and narrow their jurisdictions; special boards and commissions are created; new agencies are established. For example, in 16 states, at least one legislative chamber has separate committees for higher education and for elementary and secondary education. In 5 of those states, each house has separate committees for the levels of education.

However, specialization contributes to the fragmentation of the system. Policies are crafted by experts with increasingly narrow perspectives and experts in a particular sub-field have few incentives to consider how their actions will affect other specialized sub-fields. While bills often contain multiple provisions crossing many sub-areas of policy, they are typically omnibus in nature, containing collections of discrete programs rather than integrated approaches to policy problems.

Opportunities for More Coherent Policymaking

Despite the serious challenges facing systemic reform, recent activities in a number of states suggest that policymakers *can* establish ambitious goals and reinforce them with coordinated policies. Certain factors and conditions seem to support these efforts.

Pending further study of the politics of reform efforts, it appears that the following are central to the development of systemic reform strategies: strong leadership around a clear vision of reform; processes that promote public and professional involvement; and the support of the federal government, national groups and professional and policymaker associations.

Leadership can come from a variety of sources. For example, the Kentucky legislature can be credited with enacting, and sticking with, the state's ambitious reform; in some states, such as Delaware and Vermont, the chief state school officers are providing strong direction. Governors Romer and Engler are among those actively shaping reform efforts.

Public and professional involvement can be promoted by standards-setting processes that involve citizens and professionals in various stages of standards development and review. Broader support can nuture and buffer fragile political efforts that try to bridge traditional divisions and overcome short-term blinders in service of coherent policymaking.

Finally, the federal government and national associations of policymakers and professionals are actively promoting systemic reform, helping to reinforce the commitment of state policymakers. The federal government assists states with systemic reform through efforts like the National Science Foundation's Statewide Systemic Initiatives Program. It also supports disciplinary associations that are developing national standards in key subjects that can be used by states in their own reforms. Groups such as the National Governors' Association, the Council of Chief State School Officers, the National Conference of State Legislatures, and the Education Commission of the States assist policymakers with the difficult design and implementation tasks associated with reform. They also validate the work of policymakers within their states by giving them national publicity and reinforcement (Fuhrman and Massell 1992; Massell 1994; Massell and Fuhrman 1994; Massell and Kirst 1994; Fuhrman and Elmore 1994).

An interesting development is the willingness of state policymakers to experiment with new structures, such as long-term commissions which in turn offer avenues for the maintainence of coherent reform over time. They address the problems of fragmentation, overemphasis on election, policy overload and specialization by uniting representatives across fragmented policy arenas and outliving changes in political leadership. Such structures promote consensus on a reform agenda that mitigates against political tendencies to veer off in new directions.

Two entities that are frequently cited—Kentucky's Prichard Committee and the South Carolina Business-Education Subcommittee—are profiled in the sidebar on page 5. These bodies, the first a volunteer citizen's organization with almost 100 members and the second a 20-member leadership group with statutory reform-related authority, illustrate how such structures can work to support reform. They perform at least five important functions that grant them great influence in shaping and sustaining reform efforts.

✱ Both the Prichard Committee and the Business-Education Subcommittee *represent a variety of constituencies*.

This enables them to provide effective advocacy for reform and to link diverse interests. Because their memberships bridge institutions, levels of governance, political parties, and the private and public sectors, they are viewed as credible voices for children. They are not driven by electoral politics nor are they responsive to narrow constituencies.

Early success in mobilizing citizen participation and support for reform helped establish the "voice of the people" reputations of both groups. In 1984, shortly after it incorporated as a private, nonprofit citizens group, the Prichard Committee organized a televised statewide town forum which involved 20,000 Kentuckyians and contributed to the governor's call for a special legislative session on education. The SC Subcommittee is a joint working committee of two larger groups formed in 1983 by then Governor Richard Riley; their efforts to generate broad-based grassroots support led to the Education Improvement Act (EIA) of 1984, an accompanying sales tax increase, and a network of 26,000 people who can still be called on to support education.

✱ **Second, both groups are mechanisms for the *incorporation of business interests* into larger reform coalitions.**

Prior to EIA, business had never before rallied to support an increase in the sales tax for education in South Carolina. In the years since, the Subcommittee has been a strong voice for maintaining the state's financial commitment to reform. A few years ago, the Prichard Committee formed the Partnership for Kentucky School Reform with the state Business Roundtable specifically to "maintain solidarity for the implementation of the Kentucky Education Reform Act (KERA)" (Prichard Committee 1992, 6). The Partnership was launched with $1.5 million from key Kentucky corporations.

In these states, unlike others, there is no doubt that business supports education, no separate "business" agendas, no concerns that business leaders pursue policy intiatives primarily because they distrust educators and want them controlled. Instead business leaders are key participants in crafting, negotiating, supporting, selling and sustaining reform efforts. Their inclusion widens reform support and helps to buffer reforms from the vagaries of political change.

✱ **Third, Prichard and the Subcommittee serve as *training grounds for leadership*, both within education and more generally.**

The current governor and lieutenant governor of Kentucky are former Prichard members; its membership list is frequently used by officials seeking nominees for boards, commissions and the like. Several long-term citizen members of the SC Subcommittee have become key participants in diverse education-related activities throughout the state. Members take commitment to reform along with them to their new activities and responsibilities, enhancing the likelihood that reform direction will be sustained over time and supported by an

Citizens Unite to Support Reform

The Prichard Committee for Academic Excellence

This is a non-profit, volunteer group composed of 95 private citizens, including former governors, buisness leaders, civic activists, parents and professionals. Membership is not open to statewide elected officeholders or candidates or professional educators (except K-12 classroom teachers).

Prichard began as a governmental committee charged with studying the longterm needs of postsecondary education. In 1983 it became a private, nonprofit organization and turned its focus to K-12 education. It developed reform recommendations, publishing major reports demonstrating the need for reform, arguing for coordinated reform policies and suggesting specific reform approaches; organized citizen and business support; and assisted the legal and political processes that spawned the 1990 Kentucky Education Reform Act (KERA).

Currently, the Committee monitors and supports reform implementation. With funding from corporations and foundations and a staff of 17 people, the Committee is pursuing the following activities:

- Informing the general public about provisions of the reform act and its implementation through summmaries, reports, the media, primers, training of local affiliates and the like.
- Enlisting, training and supporting citizens through Community Committees on Educational Reform. Community Committees in each district are intended to inform the public, recruit and train school site council candidates, develop local leadership and monitor local implementation progress.
- Promoting and supporting parent participation in school-based decision making through training and information.
- Monitoring, evaluating and reporting state progress on KERA. Activities include training Committee members and other affiliates for monitoring tasks, creating a state-level checklist of implementation activities, publicizing open meetings, and supporting and disseminating studies of reform. Prichard plans annual reports to the state on implementation progress.
- Reporting to the nation on KERA progress, through dissemination and media relations.

The South Carolina Business-Education Subcommittee

This is a joint subcommittee of two large blue-ribbon committees which were active in promoting the 1984 Education Improvement Act (EIA). EIA authorized the Subcommittee and charged it with reviewing program regulations to assure conformity to EIA; reviewing evaluations and assessments of progress produced by the state agency and other oversight bodies; and making recommendations for the future. Recommendations are to encompass educational needs in the state and current reform policies needing updating.

The 20-member Subcommittee (10 civic/business members; 6 educators and 4 legislators, by statute) has a small staff and appropriation. It produces an annual report evaluating EIA progress and widely distributes shorter updates. The reports draw on other monitoring and evaluation activities as well as the Subcommittee's own sense of issues requiring attention, needs for finetuning and recommendations for improvement.

ever-broadening group of influentials.

✱ Fourth, *the reporting and monitoring functions* of these groups, keep public attention focused on reform.

Both groups regularly inform citizens about implementation progress and effects and continually remind them that the reforms will take time to bear full fruit.

Faithful implementation is encouraged by regular reporting on progress. Policymakers have means other than new policy initiatives to show their dedication to education improvement; they can participate in the activities of these groups and comment on their reports of reform progress. As a consequence, these states are likely to experience fewer shifts in emphasis and less proliferation of projects. Reform direction is more likely to be maintained over time. For example, the EIA remained intact while the Subcommittee examined its progress yearly; many of the Subcommittee'srecommendations for fine-tuning were then incorporated into the 1989 Target 2000 reform. Because oversight was occurring, the later reform was deliberately built on and designed to improve the first, not developed in the absence of knowledge about the effectiveness of existing policy, as many reforms are.

✱ Finally, both groups are vehicles for *sharing state reform efforts with a multi-state audience* and for channelling national expertise to state policymakers.

The Prichard Committee has a national advisory panel to guide it in establishing monitoring priorities and to offer advice regarding best practice in key reform areas. It disseminates information about Kentucky reform to national media and audiences. It also convened a meeting of national researchers and participated in designing an independent evaluation of KERA. Similarly, the SC Subcommittee's EIA Update has reached a wide audience, and South Carolina reform has received extensive national media coverage. The national reinforcement helps cement in-state support for reform.

The success of the Prichard and South Carolina committees is evident in their influence. Both have served to generate ideas that have been incorporated into policy; the Kentucky Education Reform Act (KERA) and Target 2000 include many of their recommendations. More informally, their members serve as sounding boards for policymakers.

The groups do not go unchallenged, however. Prichard is not uniformly lauded by practitioners and has been at odds with the school boards association over the roles of school-site councils. To smooth these relationships, the Committee participates in an Education Coalition of major state education organizations designed to present a unified position on education legislation. The Business-Education Subcommittee is currently experiencing some instability related to shifts in its leadership and to an increasingly complex and partisan political environment, suggesting efforts to bridge changes in leadership are problematic. In addition, both the Kentucky and South Carolina groups raise questions about whether new consensus-building structures—formal or volunteer—facilitate the work of existing structures or become routes for bypassing or duplicating their work. As Morone (1990) argues, such entities can make government temporarily more responsive; but over time they may add to rather than lessen the complexity and impenetrability of the policy process.

Despite these questions, the Prichard Committee and the Business-EducationSubcommittee provide many lessons about the role of constituency-bridging groups in building and sustaining support for reform. In at least six other states, non-profit organizations located outside of state bureaucracy are taking the lead for reforms supported by the National Science Foundation's Statewide Systemic Initiatives Program. Participants indicate that locating leadership in a new organization permits broader participation, unites diverse interests, avoids red tape, and enables them to hire staff at higher salaries than offered by state government (Corcoran 1993).

Conclusion

Because the political system seems incapable of coherent approaches and sustained direction, many argue that politics should be abandoned altogether—by subjecting schools to market control or by removing policies so that schools can improve themselves unfettered.

However, the abandonment of policy does not offer hope of widespread improvement because schools are not able to sustain self-generated change. Nor is school-by-school change likely to spread to all schools. The system must offer support. Current systemic reform efforts suggest that states are willing to experiment with more coherent approaches to policy that might offer support for school improvement. Perhaps systemic reform's recent popularity reflects its political appeal as a basis for unifying those interested in educational improvement. The notions of more ambitious standards, coherent policy in support of those standards, and restructured governance reach across traditional lines of division, providing a platform for unification. The idea that higher-level policy should focus on results rather than school process appeals both to policymakers concerned about accountability and to practitioners who want to keep policymakers out of decisions about their practice.

Similarly, the idea that consensus about results should focus on a streamlined core body of knowledge and skills attracts educators who wish to leave determination of detailed curricula to the school and foster the ability of schools to meet the needs of diverse student bodies. State curriculum frameworks and reinforcing policies could provide a protective structure that would undergird strategies for parental choice and other approaches to decentralizing school governance. To the extent that systemic reform ideas form a platform for uniting diverse reform constituencies they take on political power.

The ideas that exert the greatest influence are those that balance political forces, finding ways to enlist existing interests as well as to open up new opportunities. Systemic reform has many of the properties of so-called "public ideas" (Moore 1988; Reich 1988). It challenges "society to perceive and deal with a problem differently" (Moore 1988, 83) by changing the terms of the education reform debate. The new entities states are establishing as arenas for reform discussion illustrate that constituency-bridging ideas and structures may go hand in hand.

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"FOR ALL STUDENTS"

Limited-English-Proficient Students and Goals 2000[1]

A Discussion Paper[2]

September 2, 1994

The parade marking the advent of standards-based reform has left town hall. On March 31, 1994, President Clinton signed into law the *Goals 2000: Educate America Act*, an Act that codifies in law the national education goals and provides resources to states and communities to develop and implement systemic education reforms aimed at helping all students reach challenging academic and occupational standards.

Presently, there are many vigorous attempts under way to develop content and performance standards in different academic areas and to create assessments that are aligned with these standards. Content standards are being developed or have been developed by professional organizations of teachers and scholars in English, mathematics, science, history, geography, foreign languages, citizenship/civics, the arts and other subjects. The New Standards Project is developing and field-testing innovative assessments tied to some of the new content standards.

States and districts have also been very involved in some aspects of systemic reform. At least 45 states have created or are preparing new curriculum frameworks, while at least 26 states and the District of Columbia will be dealing with educational standards in 1994.[2] New York City, under the guidance of Schools Chancellor, Ramón Cortines, has undertaken the development of a curriculum framework for all the city's public schools. According to the Chancellor, standards are needed to address vast differences in the material taught to certain grades in each of the city's schools and community school districts.

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[1] This paper is based on several meetings on L.E.P. students and systemic education reform that have taken place over the past two years, and the documents that have resulted from them. These include meetings of the *Stanford Working Group on Federal Education Programs for Limited-English-Proficient Students* and its resulting document, *Blueprint for the Second Generation* (sponsored by the Carnegie Corporation of New York); a meeting on Standards and Assessment and L.E.P. Students and a meeting summary document (sponsored by the U.S. Department of Education, the Carnegie Corporation, and the MacArthur Foundation); and regional meetings to discuss the implications of systemic reform on the education of L.E.P. students at the local and state levels (sponsored by the MacArthur Foundation and the Carnegie Corporation). A list of participants at the Washington meetings on Systemic Reform and L.E.P. students is included in Appendix B. The document was drafted principally by Diane August, with editorial assistance from Kenji Hakuta and Delia Pompa, and innumerable contributions from the participants in our meetings.

[2] This paper is a working draft. *Comments on this document are welcome. They should be addressed to: Kenji Hakuta, School of Education, CERAS Bldg., Stanford University, Stanford, CA. 94305; fax: 415-723-7578.*

This movement toward setting high standards is accompanied by a general recognition that the system must be for *all students, including limited-English-proficient students.* We welcome language in *Goals 2000* that defines "all students" as meaning "students or children from a broad range of backgrounds and circumstances, including among others, students or children with limited-English proficiency." However, there has not been an explicit analysis of how to incorporate L.E.P. students into systemic reform.

The general recognition that the system must be for all students is backed by civil rights laws that govern the administration of all Federal aid to educational institutions. Title VI of the Civil Rights Act of 1964 bars discrimination on the basis of race, color, and national origin. The U.S. Department of Education interprets the Act and its implementing regulations to require that school districts address the language-related needs of limited English proficient students; this interpretation has been upheld by the U.S. Supreme Court in *Lau v. Nichols*, 414 U.S. 563 (1974). Section 1703(f) of the *Equal Educational Opportunity Act* (EEOA) of 1975 also lays out the responsibilities of school districts toward the education of L.E.P. students. The EEOA provides that failure to take appropriate steps to educate L.E.P. students constitutes a violation of equal educational opportunity.

This paper is an attempt to highlight the substantive issues that arise in incorporating L.E.P. students into systems-based reform. Further, it makes recommendations for how to address these issues. Because state and local efforts in this area will most likely be coordinated around the framework of *Goals 2000*, the recommendations, for the most part, follow the format of the Act. The analysis and recommendations are our first attempt to define and shape the national dialogue on how L.E.P. students might profit from this new paradigm.

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[2] Pechman, E. M. & LaGuardia, K. G., *Status of New State Curriculum Frameworks, Standards, Assessments, and Monitoring Systems* (Washington, D.C.: Policy Studies Associates, 1993).

Vision for Reform

School failure persists among a disproportionate number of language-minority students.[3] For Hispanics and Native Americans, dropout rates remain far higher than for other groups.[4] Those who stay in school often graduate without the rigorous preparation they need to compete in the job market. Large numbers of L.E.P. children continue to receive instruction that is substandard to what English speakers receive.[5] This amounts to a two-tier system of education, with challenging curriculum for some and mediocrity for the rest.

There is an urgent need to address the school failure of L.E.P. students given current demographic trends. The U.S. Census Bureau reports that the number of U.S. residents who "do not speak English very well" is growing at a very fast rate -- 37.3 percent during the 1980s.[6]

Fundamental changes are clearly in order, yet the mechanisms have been elusive. A necessary part of the change is to address the current fragmentation of educational services. States now play a limited role in Title VII (Bilingual Education Act) projects which in turn are rarely coordinated with Chapter 1 (Title I), migrant education, or other federal or state efforts.[7] Often this means that resources are dispersed, children's needs are only partially addressed, and no one is held fully accountable. Whether programs succeed or fail, lessons are rarely drawn that could benefit other educators. Another consequence of fragmentation is that the education of L.E.P. students is not conceived as part of any larger mission. Programs to address their unique needs tend to remain ghettoized within SEAs, LEAs, and schools -- if not physically, then in administrators' attitudes and practices.[8] Children receiving "special" instruction are not expected to meet the same high standards as "mainstream" children.

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[3] There is extremely limited information at the national level on the outcomes for LEP students because major national studies, such as NAEP and NELS, exclude LEP students due to the unavailability of instruments in languages other than English. However, data from NELS on eighth grade Hispanic students show significant underachievement (approximately 30 percent failure to achieve basic levels of performance in reading and 36 percent in math) and even among students who were judged to have sufficient proficiency in English to take the tests, "those with low proficiency in English failed at a much higher rate than did students with high proficiency" (NCES, *Language Characteristics and Academic Achievement: A Look at Asian and Hispanic Eighth Graders in NELS:88* [Washington, D.C.: U.S. Department of Education, February 1992]). Preliminary data collected on a national sample of LEP students during the 1991-92 school year indicate that of 2.3 million school-aged children nationwide, approximately 200,000 LEP students were assigned to grade levels at least 2 years lower than age-grade norms. H. Fleischman, P. Hopstock, and A. Zehler, *"Preliminary Findings from the National Descriptive Study of Services for Limited English Proficient Students"* (Paper presented at the AERA meeting, Atlanta, April 1993).

[4] NCES, *Are Hispanic Dropout Rates Related to Migration? OERI Educational Research List (TCSVM): Hispanic Dropout Rates* (Washington, D.C.: U.S. Department of Education, November 14, 1992); *Hispanics' Schooling: Risk Factors for Dropping Out and Barriers to Resuming Education.* General Accounting Office, July, 1994 (GAO/PEMD-94-24). See also *Indian Nations at Risk,* (U.S. Department of Education) p. 7.

[5] For a well-documented case of California, see P. Berman, J. Chambers, P. Gandara, B. McLaughlin, C. Minicucci, B. Nelson, L. Olsen, and T. Parrish, *Meeting the Challenge of Linguistic Diversity: An Evaluation of Programs for Pupils with Limited Proficiency in English* (Berkeley, Calif: BW Associates, 1992). See also CCSSO, *School Success for Limited English Proficient Students: The Challenge and State Response*. (Council of Chief State School Officers, February, 1990).

[6] *Numbers and Needs*, 2, 4 (Jul. 1992, p. 1).

American education today lacks coherent systems to determine what children should learn, what levels of proficiency they should achieve, and what resources and organizational structures are needed to meet these goals. Without a clear systemic vision, it is difficult to plan, implement, or evaluate reforms so that our present efforts can become part of a continuous fabric of school and system improvement activities. Any amount of coherence that might be attained, however, is unlikely to have much impact unless those most directly involved in the teaching and learning process are integrally involved in planning and reforming classroom practice. As a social experiment, the success of systemic reform will ultimately depend on its ability to foster broad-based discourse and involvement.

Implications for Limited English Proficient Students

Programs for L.E.P. students must be designed and administered quite differently than they currently are. Reorienting American schools away from the old assumptions -- that minority children can learn only basic skills and that bilingualism is a handicap to be overcome -- will require a comprehensive approach. Reform must be systemic in nature. That is, it must embody "a unifying vision...a coherent direction and strategy for educational reform throughout the system."[9] Such reform will require conscious planning, coordination, and leadership in all instructional components, including curriculum, professional development, assessment, and accountability.

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[7] For example, the Westat study reported regular coordination between Chapter 1 and bilingual education offices in only one of six SEAs surveyed; *Providing Chapter 1 Services,* p. 18. This is also indicated by a CCSSO report indicating that there is little coordination between bilingual/ESL programs and the general instructional program, often resulting in discontinuity in the education of LEP students-- especially when they are placed in mainstream classrooms and perform poorly; *School Success,* p. 24.

[8] CCSSO, *School Success for Limited English Proficient Students: The Challenge and State Response*. (Council of Chief State School Officers, February, 1990), pp. 20-26.

At the same time, such reform must entail a redefinition of roles and responsibilities at all levels, a new structure of governance that is neither "top-down" nor "bottom-up." All stakeholders, including parents, must be involved in the development of a common vision for our children. Those responsible for instruction in schools and LEAs must have the authority and capacity necessary to make that vision a reality. SEAs are strategically placed to take the lead in coordinating the necessary changes in structure to support instructional changes at the school level. This includes eliciting public and professional participation, creating state plans, developing content and performance standards, and providing guidance to school districts in meeting defined goals. Meanwhile, the federal government should continue to provide supplemental resources, build state and local capacity, direct a national research agenda, and ensure equal opportunity.

Systemic reform holds promise for improving instruction and learning for all students, including L.E.P. students. But such an outcome is not a foregone conclusion. Thus far the reform movement has generally sidestepped the particular conditions, needs, and strengths of L.E.P. children. Difficult issues remain to be addressed in many areas including, curriculum, instruction, assessment, and leadership. Unless these and other issues are addressed directly, well-intentioned reforms could jeopardize a generation of progress for L.E.P. students.

The reform of educational processes that is underway involves an extensive agenda of curriculum and professional development. These activities recognize that for educational reform to be effective, it requires the engaged participation of teachers and other practitioners who need both personal commitment and significant resources to bring about fundamental changes in their work practices. While substantial progress has been made in developing and understanding changes in learning environments and teaching practices that are beneficial for many students, much less effort has gone into research and practical development that specifically address the needs of L.E.P. students.

Major investments are needed in research and development to construct and evaluate learning resources and teaching methods that can effectively provide the benefits of educational reform for L.E.P. students. As has been the case in the general reform movement, efforts to develop these materials and practices need to include analytical studies of their use to inform improvements in subsequent implementations and to provide understanding of what features of the new programs are necessary for their success in other settings.

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[9] Marshall S. Smith and Jennifer O'Day, "Systemic School Reform," in S. Fuhrman and B. Malen (eds.), *The Politics of Curriculum and Teaching*, Yearbook of the Politics of Education Association (Bristol, Pa: Falmer Press, 1990), p. 246.

Standards and L.E.P. Students

Language-minority students can greatly benefit from the movement toward higher standards for all. Yet, all too often, this goal is frustrated by a myopic focus on English acquisition, to the virtual exclusion of other subjects. To break the self-perpetuating cycle of low expectations and academic failure, L.E.P. children must be provided access to challenging content while they are acquiring English. For children who face language barriers to achieve high standards, schooling must be tailored to their strengths and needs. It is also essential that pursuit of greater competence in foreign languages as a Nation begins with a recognition that L.E.P. students represent an unmatched resource.

This document is based on two overarching principles about the education of L.E.P. students embodied in the Stanford Working Group's *Blueprint for a Second Generation*:

1. Language-minority students must be provided with an equal opportunity to learn the same challenging content and high level skills that school reform movements advocate for all students.

2. Proficiency in two or more languages should be promoted for all American students. Bilingualism enhances cognitive and social growth, competitiveness in a global marketplace, national security, and understanding of diverse peoples and cultures.

RECOMMENDATIONS

The following recommendations are offered to ensure that L.E.P. children are considered -- and included -- in sweeping proposals now embodied in *Goals 2000*. The recommendations address inclusion, opportunity to learn standards, assessment, accountability, and research and development. In Appendix A, we describe the specific legislative provisions embodied in Goals 2000 and provide recommendations for each provision. Appendix B lists participants of the two meetings on systemic reform.

Inclusion at All Levels

Goals 2000 establishes a variety of mechanisms to ensure that a wide range of groups, operating at the national, state, and local levels play leadership roles in implementing the new vision of reform. It is essential that persons knowledgeable and concerned about the education of L.E.P. students be included in national, state, and local panels and be encouraged to attend public hearings and participate in evaluative and analytical studies of programs that include L.E.P. students. Moreover, it is imperative that the standards and information related to them be widely disseminated both in English and in those other languages substantially represented in the State.

While ensuring that persons with experience and expertise in the education of L.E.P. students be included in systemic reform efforts, L.E.P. students must also be included in all aspects of reform activities. For example, NESIC, in identifying and developing certification criteria for the standards, should address the extent to which the proposed standards reflect the best available knowledge about how L.E.P. students learn, how the content can be most effectively taught to them, and how they can be assessed, and these criteria should be revised periodically in the light of results from evaluative and analytical research.

In addition, state and local plans should address the unique needs and contributions of L.E.P. students, and there should be continuing review and improvement of these plans and their implementation, based on studies of their effects. For example, states in their plans should provide assurance that they have statewide criteria for the identification and reclassification of students from other than English backgrounds. The reclassification criteria should be such that L.E.P. children once reclassified are able to function in all-English classrooms at levels comparable to fluent English speakers. In school districts that enroll L.E.P. students, the LEA plans should specifically address: the recruitment, training, and deployment of teachers and aides to provide effective instruction to L.E.P. students that is based on our knowledge from research and professional experience; the acquisition and use of instructional materials -- in all languages substantially present in the school district -- equivalent to those provided in the English language curriculum; the most effective means for providing L.E.P. students with access to high quality curricula, instructional materials, extra-curricular support systems and technology; the meaningful participation of language-minority parents; the inclusion of L.E.P. students in all programs offered by the district; and the development and use of assessment instruments appropriate to measure the academic, linguistic, and social progress of L.E.P. students.

The Standards and the Opportunity to Achieve Them

The content standards should reflect the best available knowledge about how L.E.P. students learn and about how the content can be most effectively taught to them.[10] Moreover, they should incorporate the cultural background and life experiences of culturally diverse children. For example, social studies content standards should reflect the social diversity of the United States. In addition, consideration should be given to certifying the standards only if there is evidence they can be achieved and are in use in a state or local district[11], and there should be continuing review of the standards, including evaluation of the resources that are available for their implementation.

Because limited English proficient students have to acquire English language skills and knowledge that students who arrive in school speaking English already possess, we recommend that English as a Second Language (E.S.L.) content standards be developed. The standards for E.S.L. should be complementary and supportive of the English language arts standards. There is concern among experts in the field, however, that the E.S.L. standards may supplant rather than supplement the English language arts standards. This would result in L.E.P. students being held to different standards than English-only students.The relationship between E.S.L. standards and English language arts standards will need to be worked out through future research/development efforts and collaboration between groups that are developing standards in these areas.[12] The content standards for English as a second language should be accompanied by standards for teaching and assessment.

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[10] In addition to these content standards, there should be standards that prescribe resources that must be made available to teachers and schools to support learning outcomes, as well as standards for the learning outcomes that should be achieved.

[11] Council of Chief State School Officers, *Preliminary Report: Recommended Criteria and Procedures for Certifying State and Voluntary National Standards for Education* (Washington, D.C., Council of Chief State School Officers, July 1994).

[12] Although it should be acknowledged that English language arts standards are relevant for second language learners of English, there are some aspects of language proficiency that are assumed to be present in all school-age native speakers of English, such as control of the phonological, syntactic, semantic and pragmatic aspects of language that are part of normal first language acquisition. These aspects of English would not be included in the language arts standards. Second language learners of English possess these abilities in their native language, but must develop these capacities in their second language.

The standards should also acknowledge the importance of the abilities in the non-English languages of L.E.P. students, through the development of foreign language standards that accommodate these students who speak the "foreign" language as a native language.[13] That is, the continuum of skills defined by the foreign language standards should be developmentally appropriate for -- and rigorous enough to incorporate -- competencies demonstrated by native speakers of languages other than English.

L.E.P. students should be held to the same high standards as other students. However, in order to successfully compete in content areas taught in English, L.E.P. students must acquire English skills comparable to those of their fluent English speaking peers. Given this, we recommend the certification of additional performance standards in the content areas to measure the progress of students who are limited English proficient until they can be classified as fully English proficient and thus held to the same performance standards as native English speakers.[14]

Setting high expectations for all children will further the cause of educational equity, provided that appropriate, high-quality instruction and other essential resources are available. We propose that States establish a multi-faceted approach to enhancing opportunities to learn with provisions to ensure that the unique educational needs of L.E.P. students are met. This approach should include both the enforcement of a core set of standards as well as the use of "indirect" strategies to build the capacity of schools and school districts, and continuing study of the effectiveness of the various kinds of programs that will be developed.[15]

In regard to setting core standards, we recommend that the standards be focussed on assuring equal access to learning embodied in the new content and performance standards. These core standards should be legally required and externally regulated by states and the federal government. Examples of core standards that all schools should meet, include, for example, appropriately certified staff and student access to core coursework.[16]

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[13] Promising approaches to helping students meet the foreign language standards include programs to develop the native language (e.g., Spanish for Spanish speakers) and two-way bilingual programs (see D. Christian & C. Mahrer, *Two-way Bilingual Programs in the United States, 1991-1992.* Washington, D.C.: Center for Applied Linguistics).

[14] To enable L.E.P. students to meet the standards as expeditiously as possible, we recommend that additional resources be allocated for them, both during the school day (e.g., distance learning, specially designed curriculum) and outside the regular schedule (e.g., summer school and before- and after-school programs).

[15] This approach of combining direct and indirect strategies has been elaborated in a recent paper by Richard Elmore and Susan Fuhrman, *Opportunity to Learn and the State Role in Education* (New Brunswick, New Jersey: Consortium for Policy Research in Education, 1994).

State education agencies should also employ a wide variety of indirect strategies to improve schooling. In these efforts, they should mobilize and cooperate with other institutions to enhance state capacity. One strategy is to provide incentives to school districts to go beyond the core standards (e.g., additional state funds for schools to run specially designed summer programs to help L.E.P. students meet performance standards). A second strategy is to evaluate projects against benchmarks of excellence, through program quality reviews. California, for example, has a Program Quality Review System that relies upon peer review. Benchmarks could include school-wide and classroom factors that are known to improve the overall education of all children, including L.E.P. students.

A third strategy is to work with colleges, universities and state licensing agencies to increase the number and quality of school personnel prepared to work with L.E.P. students. For example, states which lack a credentialling process for bilingual or ESL teachers, can be assisted in developing such a process. In addition, states might increase the pool of bilingual and E.S.L. teachers through initiatives that recruit bilingual undergraduates and graduates into the teaching profession, enable bilingual paraprofessionals to become certified teachers, provide temporary certification to experienced teachers from other countries whose native languages match those of their potential students, and encourage international fellowship programs for teachers. States can also work with institutions of higher education and school districts to increase the number of school personnel who are prepared to work with L.E.P. students by ensuring that teachers are trained in language development theory, methods for making content accessible to L.E.P. students, and the history and culture of linguistic minorities substantially present in the state.

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[16] For a well-documented case of why core standards are necessary see C. Minicucci and L. Olsen, *Programs for Secondary Limited English Proficient Students: A California Study*, (Washington, D.C: National Clearinghouse for Bilingual Education, *Focus*, Number 5, Spring 1992). They found that "in 27 California intermediate and high schools, regardless of the instructional approach taken to content instruction, fewer than one-fourth of the schools surveyed offer full programs for students learning English. More than half of the high schools and one-third of the intermediate schools have major gaps in their offerings or offer no content courses at all. Thirteen of the twenty-seven schools surveyed either offer few or no content area classes for students." By "access," we mean that materials and instruction are comprehensible to L.E.P. students through strategies and materials that are specifically geared to the linguistic needs of the students.

A fourth approach is working with the legislature and other stakeholders to decrease funding inequities among school districts. This would greatly benefit L.E.P. students, the majority of whom are concentrated in high-poverty districts.[17]

Assessment[18]

Even for English-proficient students, few valid and reliable instruments exist for assessing student achievement aligned with new conceptions of knowledge and skills embodied by the content standards, although development efforts are under way.[19] For L.E.P. students, the problem is even more difficult. Current assessment instruments in English are inappropriate because they actually assess both content concepts and language ability, particularly reading comprehension and writing. The interconnection of language and content makes it difficult to isolate one feature from the other. As a result, it is difficult to know whether a student is unable to demonstrate knowledge because of a language barrier or whether the student does not know the content material being tested. Often these assessments, then, simply become measures of L.E.P student language proficiency rather than measures of content knowledge, as they are intended to be. Valid methods for assessing L.E.P. students' knowledge of content matter in English have yet to be developed. Further, reliable tests in languages other than English that measure knowledge and skills have been virtually non-existent.

Many of the current reform efforts assume that SEAs and LEAs can stimulate creativity and initiative by giving schools greater flexibility in delivering instruction, while holding them accountable for outcomes. To work effectively, accountability mechanisms must combine well-defined content and performance standards with valid, reliable instruments for assessing student achievement.

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[17] See M. Moss and M. Puma, *Prospects: The Congressionally Mandated Study of Educational Growth and Opportunity, Interim Report on Language Minority and Limited English Proficient Students* (Cambridge, Mass: ABT Associates, 1994.) Data from the Prospects study indicate that L.E.P. students are over-represented in high poverty schools (defined as schools where at least 75 percent of the students are eligible for free or reduced price lunches). More than 40 percent of the first grade L.E.P. students and 50 percent of the third grade L.E.P. students attend high poverty schools.

[18] Although the law mentions a variety of purposes for assessment, this document mainly addresses assessment for accountability purposes. The group discussions focused on this aspect of assessment because of the enormous complexity and high stakes nature of this area.

[19] For example, the New Standards Project. Also see Cronbach, L., Bradburn, N. & Horvitz, D., Sampling and statistical procedures used in the California Learning Assessment System. Report of the Select Committee. July 25, 1994. California State Department of Education.

In most states, however, L.E.P. students are not assessed for accountability purposes until they have acquired a certain level of English proficiency and/or have been in a school system for a specified period of time. As a result, L.E.P. students are often exempt from testing for accountability purposes. Even when L.E.P. students are included in assessments, scores are often not reported by L.E.P. status. Thus, the data on how L.E.P. students are progressing against the standards of a particular school, district, or state are quite limited and/or not easily accessible. The result is that no one is ultimately responsible for ensuring that L.E.P. student receive high quality instruction comparable to that provided to their English-speaking peers.

If the reform process is to make a difference in the education of L.E.P. students, they too must be included in assessments. However, for L.E.P. students, assessments which rely on standardized norm-referenced tests in English have historically been problematic. These assessment instruments actually assess both content concepts and language ability -- in particular, reading comprehension and writing. The interconnection of language and content makes it difficult to isolate one feature from the other. As a result, it is almost impossible to determine whether a student is unable to demonstrate knowledge because of a language barrier or because he or she does not know the content material being tested. Adding to the problem is that such assessments are generally not aligned with the school curriculum. Furthermore, they are usually normed on non-L.E.P populations and thus scores cannot be interpreted for L.E.P. students. In short, traditional assessments are not designed with L.E.P. students in mind. Often they simply become measures of L.E.P students' language proficiency rather than measures of content knowledge, as they are intended to be.

An assumption implicit in *Goals 2000* is that new assessments such as performance-based measures and portfolios will change the nature of the teaching/learning process and that these new assessments will enable students to more aptly demonstrate what they know and can do. However, even with new assessment technologies, equity is still a key concern for L.E.P. students. For example, many new assessments emphasize English communication skills and subject matter knowledge and thus place a heavy demand on the English skills of L.E.P. students. Moreover, as with traditional assessments, L.E.P. students continue to be exempted from these assessments until they reach a certain level of English language proficiency, thus maintaining the issue of lack of progress and accountability data for these students.

If L.E.P. students are not assessed, no one can really be held accountable for what these students know and can do in important content areas. Thus, we recommend that states develop performance assessments that are appropriate for L.E.P. students.

L.E.P. students who are instructed in their native language, should be assessed in that language. L.E.P. students who are better able to demonstrate content knowledge in their native language, even though they have not received native language instruction, should also be assessed in their native language.[20] The native language assessments should parallel content assessments and performance standards in English. States with substantial numbers of L.E.P. students in given language groups should include a process in their state plan for developing or borrowing (from other states or entities such as large school districts with substantial L.E.P. students) content area assessments in languages other than English. This process might also involve cooperative efforts among two or more states, or the development of multi-state item banks, and should include persons knowledgeable about the assessment of L.E.P. students and systems serving them.

Modifications in assessments and assessment procedures should be encouraged to enable L.E.P. students to take content assessments in English. These modifications might entail: altering the procedures used to administer the assessments (e.g., giving instructions in the native language, allowing students to respond in their native language, using think-aloud techniques); modifying the assessment itself so it is more comprehensible to L.E.P. students (e.g., decreasing the English language demands); using alternative assessments (e.g., portfolios to collect the student's best work over time); and employing computer-assisted assessments that are tailored to the language needs and content knowledge of L.E.P. students. In all instances, however, it is important to ensure that assessments are equivalent in content and rigor to those used to measure the progress of fluent English speakers.[21] It is not imperative that these assessments be the same as those given to fluent English speakers. However, to gauge the progress of L.E.P. students, the assessments must remain comparable over time.

Until the psychometric issues underlying these new assessments have been addressed, and until mechanisms to ensure opportunities to learn have been fully implemented, these assessments should not be used in high stakes testing for students.

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[20] Such assessments are particularly important for students who have been educated in other countries and thus are able to demonstrate content knowledge in their native language.

[21] There will have to be considerable research and development in the construction and evaluation of these instruments before this becomes a reality.

In keeping with the model of opportunity to learn proposed in this paper, we recommend that states evaluate the extent to which schools and districts implement the "core standards" as well the merit of indirect strategies in improving student access and participation in high quality learning. In evaluating both core standards and indirect strategies, we recommend that states assess the extent to which they meet the unique needs of L.E.P. students.

Accountability

States should develop systems of school and LEA accountability that fully incorporate L.E.P. students. The performance assessments that are developed should be administered to a sample of students adequate to provide statistically stable estimates for schools and subgroups of students below.

In the case of L.E.P. students for whom adequate assessments in the native language are not available, and for whom English language assessments are inappropriate, schools may choose to waive content performance assessments conducted in English. However, states must use alternative methods to hold schools accountable for the progress of L.E.P. children who have not been assessed. One option is to require schools to count L.E.P. student assessment scores as zero for these students.[22] Another option is to monitor the progress of L.E.P. students through other means such as teacher ratings and grades.

States should set a limit on how long L.E.P. students can be waived from taking the same performance assessments in English as their English-speaking peers. This limit should be based on their English proficiency levels rather than years in school or in English-only programs.

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[22] In most cases, any score is better than no score since exempting students from assessments limits opportunities to evaluate their progress over time. Recognizing the limitations of traditional assessments, alternatives other than exempting L.E.P. students from assessments should be developed to measure the academic progress of these students and to help ensure that accountability mechanisms include L.E.P. students. If a state, school, or district fails to provide appropriate alternative assessments, it is recommended that students exempted from testing be assigned a score of zero, and that these zero scores be figured in the calculation of group measures of achievement.

States should collect and report data on students' performance in the content areas (including E.S.L. and where appropriate, foreign languages) for the school, district and state as a whole, disaggregated by L.E.P. status of the students. In so doing, states should determine what constitutes adequate progress for all students, including L.E.P. students. In making this determination, states should consider the results of the required assessments as well as other measures of school success, such as grade retention and dropout rates. In cases where L.E.P. students fail to make adequate progress, the state should take corrective action, including but not limited to ensuring the implementation of opportunity-to-learn standards.

Research and Development

There is a considerable need for research and development if L.E.P. students are to be equitably and fully incorporated into systemic reform. Many of the research and development issues apply to all students, e.g., how to ensure that schools have the resources to educate students without creating an excessively prescriptive accountability system, or how to make alternative performance assessments sufficiently reliable and valid such that they can be used for accountability purposes.

There are, however, certain issues that are specific to L.E.P. students. For example,

- Is it possible to establish common, standard benchmarks for English proficiency for L.E.P. students within a valid theoretical framework? What are these benchmarks, and how are they related to the English language arts standards?

- What are the requisite levels of proficiency in different aspects of English for L.E.P. students to participate in English-only instruction? What are the measurement issues associated with the determination of these aspects?

- How are content knowledge and language proficiency related? What are the implications for the development of better assessments of students' content knowledge?

- What are effective instructional strategies or environments that "work" for L.E.P. students? Does this interact with the backgrounds of L.E.P. students? What level of empirical support should be evident before strategies or environments are promoted as effective?

- What modifications can be made in large-scale assessments (both in the assessments themselves and in the procedures used to administer the assessments) to incorporate more L.E.P. students? What do these modifications do to the reliability and validity of the assessments?

- How can process variables critical to opportunity to learn standards be measured and explained?

- How may instruction be made comprehensible to L.E.P. students when they participate in English-only classrooms for which they are content-ready, irrespective of English proficiency?

There is strong support for collaboration between researchers and practitioners in the conduct of research and for the notion that research be conducted in "real" environments. In this way, the research will be useful to practitioners and informed by real world problems, and at the same time push the methodological and theoretical purists to test the limits of their endeavors.

APPENDIX A

SPECIFIC RECOMMENDATIONS

U.S. Department of Education

Opportunity to Learn Development Grant

The Secretary will be authorized to make one or more grants, on a competitive basis, to a consortium of individuals and organizations to develop voluntary national opportunity-to-learn standards. As required by law, one-third of the members of each consortium must consist of individuals with expertise or background in the educational needs and assessment of children who are from low-income families, are from minority backgrounds, have limited English proficiency, or have disabilities.

Recommendation: Members should include representatives with expertise in the education of L.E.P. students and the voluntary national opportunity to learn standards should address the specific needs of L.E.P. students.

Assessment Development and Evaluation Grants

The Secretary will be authorized to make grants to states and LEAs to help defray the cost of developing, field testing, and evaluating systems of assessments that are aligned to state content standards certified or potentially certified by the Council. We concur with provisions in the law that set aside a portion of funds for developing assessments in languages other than English.

Recommendation: We recommend that innovative approaches to incorporating L.E.P. students into the assessment systems be explored.[23]

Evaluation of NESIC and the Goals Panel

A grant will be made to the National Academy of Sciences or the National Academy of Education to evaluate the technical quality of the work of the Goals Panel and NESIC and the process for the development and use of criteria for certification of standards and assessment used by the Goals Panel and NESIC.

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[23] Such approaches might entail altering the procedures used to administer the assessment (e.g., giving instructions in students' native languages, allowing students to respond in their native languages, coaching the students through the assessment), modifying the assessment itself so it is more comprehensible to L.E.P students, using alternative forms of assessment such as portfolios, and exploring computer-assisted assessments that are tailored to the language needs and content knowledge of L.E.P. students.

Recommendation: The evaluation process should include an assessment of the extent to which the provision to include "all students" is operationalized and monitored by NESIC and the Goals Panel. Persons knowledgeable about the education of L.E.P. students should be included in this review process.

State Planning for Improving Student Achievement Through Integration of Technology into the Curriculum

The Secretary will award grants to each SEA that requests a grant, to develop a systemic statewide plan to increase the use of state-of-the-art technologies that enhance elementary and secondary student learning and staff development in support of the National Education Goals and challenging standards.

Recommendation: L.E.P. students should be explicitly incorporated into state-wide plans to increase the use of state-of-the-art technologies.

Technical Assistance

The U.S. Department of Education will provide technical assistance to states and professional associations so they can implement systemic reform.

Recommendation: The U.S. Department of Education should provide funds to develop materials that will enable L.E.P. students to learn the skills and knowledge embodied by the content standards. In addition, in any technical assistance it sponsors, the Department should ensure that the needs of L.E.P. students are fully considered (e.g., in helping States plan for systemic reform, in funding associations and states to "flesh out" certification criteria for the standards and state plans).

The Goals Panel and NESIC

Composition of the Goals Panel and National Education Standards and Improvement Council (NESIC)

Groups operating at the national level will play leadership roles in implementing the new vision of reform. Goals 2000 authorizes the National Education Goals Panel and the National Education Standards and Improvement Council (NESIC). The Goals panel will be composed of 18 members, 2 appointed by the President, 8 governors, 4 members of Congress, and 4 members of State legislatures.

NESIC will be composed of 19 members -- 11 appointed by the President from nominations received from the Secretary and Speaker of the House, 4 nominations by the Majority Leader of the Senate and 4 nominations by the National Education Goals panel. Members will be selected from a broad range of categories including professional educators and education experts, representatives of business, industry, and the public. We support provisions that require not less than one-third of the individuals nominated and appointed have expertise or background in the educational needs of children who are from low-income families, from minority backgrounds, have limited-English proficiency, or have disabilities.

Recommendation: It is essential that both groups include persons knowledgeable and concerned about the education of L.E.P. students.

Responsibilities of the Goals Panel

Responsibilities of the Goals Panel include: building a national consensus for education improvement; reporting on progress the Nation and the States are making toward achieving the national education goals and the progress States are making in implementing opportunity to learn standards and strategies; reviewing the criteria developed by NESIC to certify state content and student performance standards, state assessments and state opportunity to learn standards; reviewing the voluntary national content standards, voluntary national student performance standards, and voluntary opportunity to learn standards certified by NESIC; and reporting on promising actions being taken at the national, State, and local levels to achieve the national goals.

Recommendation: The Goals Panel, in reporting on progress that the Nation and States are making toward achieving the national education goals and the progress states are making in implementing opportunity-to-learn standards and strategies, should report specifically on how these efforts impact L.E.P. students.

Recommendation: In reviewing the criteria developed by NESIC to certify State content standards, State student performance standards, State assessments, and State opportunity to learn standards, the Panel should ensure that the criteria guarantee that L.E.P. students will be fully and equitably incorporated into all reform efforts.

Recommendation: In reviewing the voluntary national content standards, voluntary national performance standards, and voluntary national opportunity to learn standards certified by NESIC, the Goals Panel should ensure that they include specific information regarding how such standards apply to L.E.P. students[24]

Recommendation: In reviewing the certification criteria, the Goals Panel should ensure that they give a place to Native American languages and social studies in all schools with substantial Native American enrollment.

Recommendation: When reporting on promising actions being taken at the national, State, and local levels to achieve the national goals, the Goals Panel should describe how these actions have affected L.E.P. and Native American students.

Responsibilities of NESIC

NESIC is responsible for identifying areas in which voluntary national content standards should be developed, identifying and developing criteria to be used for certifying voluntary national content and student performance standards, and certifying these voluntary standards and the standards proposed by states, if such standards are comparable or higher in rigor to the voluntary national standards.

NESIC will also certify state assessments if such assessments are aligned with the state's content standards. In determining appropriate certification criteria for State assessments, NESIC is required to consider the standards and criteria being developed by other national organizations, research on assessment, and emerging new State and local assessments, recommend needed research, encourage the development and field testing of State assessments, and provide a public forum for discussing, debating, and building consensus for the criteria to be used in certifying state assessments.

Recommendation: NESIC, in identifying and developing certification criteria, should address the extent to which the proposed standards reflect the best available knowledge about how L.E.P. students learn, how the content can be most effectively taught to them, and how they can be assessed; these criteria should be revised periodically in the light of results from evaluative and analytical research.[25]

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[24] In reviewing early drafts of the national content standards, we found that despite explicit principles that the standards apply to all students -- i.e., that they should be reflective of a multicultural society, should build on students' first languages and home culture, and that all students should have the opportunity to learn -- there is very little specific information or guidance regarding how this will occur.

Recommendation: The certification criteria should address the extent to which the proposed standards incorporate the cultural background and life experiences of linguistically and culturally diverse children. For example, social studies content standards should reflect the social diversity of the United States.

Recommendation: Consideration should be given to certifying standards only if there is evidence they can be achieved and are in use in a state or local district. Further, examples of student performance that meet the standards as well as a description of the conditions needed for students to reach this level of performance should be included as part of the submission

Recommendation: In regard to performance standards, NESIC should consider that L.E.P. students may take longer to achieve the performance standards set for fluent English speakers. It may consider certifying additional performance standards that measure L.E.P. student progress until they can be classified as fully English proficient and thus held to the same performance standards as other students.

Recommendation: NESIC should certify English as a Second Language (E.S.L.) standards. In addition to standards in the traditional content areas, there should be standards for E.S.L. that are complementary and supportive of the English language arts standards. The relationship between E.S.L. standards and English language arts standards will need to be worked out through future research/development efforts and collaboration between groups that are developing standards in these areas. The content standards for English as a second language should be accompanied by standards for teaching and assessment.

Recommendation: The standards should also acknowledge the importance of the abilities in the non-English languages of L.E.P. students, through the development of foreign language standards that accommodate these students who speak the "foreign" language as a native language.[26] That is, the continuum of skills defined by the foreign language standards should be developmentally appropriate for -- and rigorous enough to incorporate -- competencies demonstrated by native speakers of languages other than English.

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[25] For example, many L.E.P. students will be acquiring content knowledge and skills in their second language. To the extent that the standards are essential and feasible, L.E.P. students (as well as all other students) will have a better chance of acquiring the most important and enduring knowledge and skills in each discipline. Moreover, for the same reasons L.E.P. students will benefit from any formulation of "overarching" standards by kindred disciplines.

Recommendation: NESIC, in certifying exemplary national and state opportunity to learn standards, should ensure that such standards explicitly address the needs of L.E.P. students. We propose a multifaceted approach to setting standards that includes the enforcement of a core set of standards as well as indirect strategies to enable all schools to fully educate L.E.P. students.

Recommendation: Until the psychometric issues underlying new assessments have been addressed, and until mechanisms to ensure opportunities to learn have been fully implemented, NESIC should not certify these assessments for high stakes purposes.

Recommendation: In certifying all the standards, NESIC should address the extent to which the proposed standards have been developed through a process that provides for input and involvement of parties knowledgeable and concerned about the education of L.E.P. students. In particular, in their efforts to determine appropriate certification requirements for the State assessments, we urge NESIC to involve persons with expertise in the assessment of L.E.P. students.

Recommendation: Because we are just beginning to think about and experiment with certification criteria, we recommend that a process be put in place to ensure there is continuing research, evaluation, and revision of these criteria.

State and Local Education Systemic Improvement

Composition and Responsibilities of the Panel

The state improvement plan must be developed by a broad-based panel in cooperation with the SEA and the governor. The governor and the chief state school officer will each appoint half of the members and jointly select the chair of the panel. The panel must be geographically representative and reflect the racial and ethnic diversity of the state's population and include: the governor and the chief state school officer, or their designees; the chair of the state board of education and the chairs of the appropriate authorizing committees of the state legislature, or their designees; teachers, principals, and administrators who have successfully improved student performance; representatives of a broad range of other organizations, institutions, and agencies interested and involved in education and related services; and parents.

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[26] Promising approaches to helping students meet the foreign language standards include programs to develop the native language (e.g., Spanish for Spanish speakers) and two-way bilingual programs (Christian ...)

The Act requires that membership in the panel reflect the diversity of the population of the State and that it be composed of members with expertise or background in the educational needs or assessments of children from low-income families, children with minority backgrounds, children with limited-English proficiency, or children with disabilities in proportionate numbers to such students in the state or is at least one-third of the number of panel participants.

The panel is responsible for conducting a statewide, grassroots outreach process to ensure that all with a stake in the success of students and their education system and who are representative of the diversity of the State and the State's student population are involved in the development of the State improvement plan and in a continuing dialogue regarding the need for and nature of standards for all students and local and State responsibilities for helping all students achieve such standards.

Recommendation: The panel should include persons knowledgeable about and involved in the education of L.E.P. students, including L.E.P. secondary students and parents of L.E.P. students. In addition, it should fully involve representatives of Native American groups and Nations within the State.

Recommendation: It is critical that people with expertise and interest in the education of L.E.P. students and who have historically worked with these children be given the opportunity to participate in the process of developing a state plan.

Recommendation: Information related to the State Plan and its implementation should be made available in languages substantially represented in the state and when necessary, discussions should be conducted in non-English languages in order to give as many parents of L.E.P. students and community members an opportunity to participate.

The State Plan: What It Will Establish

Comprehensive planning is an important element in system-wide initiatives to improve schools. *Goals 2000* authorizes federal grants to SEAs for the purpose of developing a state plan to improve the quality of education for all students. The state plan will establish: teaching and learning standards; assessments aligned to these standards; and opportunity to learn standards or strategies for providing all students with the opportunity to learn. In addition it will establish strategies for: improving governance, accountability, and management; involving parents and other community representatives in planning, designing, and implementing the state improvement plan; making the improvements systemwide; promoting bottom-up reform; decreasing school drop-out rates; incorporating school-to-work programs into the school reform efforts of the state. State plans will also include benchmarks for implementation of the plan and for improved student performance, strategies for coordinating the integration of academic and vocational instruction, and strategies for program improvement and accountability.

Recommendation: States in their plans should provide assurance that they have statewide criteria for the identification and reclassification of students from other than English backgrounds. The reclassification criteria should be such that L.E.P. children once reclassified are able to function in all-English classrooms at levels comparable to fluent English speakers.

Recommendation: The content and performance standards developed by each state should apply to L.E.P. students as well as all other students.[27]

Recommendation: State reform plans should incorporate Native American languages and social studies in all schools with substantial Native American enrollments.

Recommendation: States should establish a multi-faceted approach to setting opportunity to learn standards, with provisions that meet the unique educational needs of L.E.P. students. This approach should include both the enforcement of a core set of standards and indirect strategies for ensuring schools help students achieve high standards.

- enforcement of a core set of standards that all schools must meet (e.g., appropriately certified staff and student access to core coursework). These standards should be legally required and externally regulated by states and the federal government.

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[27] Please see our specific recommendations regarding L.E.P. students and content and performance standards in a prior section describing the responsibilities of NESIC.

- use of indirect strategies. Examples include: incentives to school districts to go beyond these core standards (e.g., providing resources for schools who run summer school programs that help L.E.P. students meet performance standards); promoting improvement through peer reviews; in conjunction with other institutions, making special efforts to overcome the shortage of educational personnel trained to serve L.E.P. students; working with the legislature and other stakeholders to decrease funding inequities among school districts.

Assessment Provisions

Recommendation: The state plan should describe how the needs of L.E.P. students will be addressed in the design and implementation of any assessment systems that may be developed.

Recommendation: The state should develop assessments of performance and opportunity-to-learn standards aligned with state content standards that are appropriate for L.E.P. students.

Recommendation: L.E.P. students who are instructed in their native language, should be assessed in that language. Students who are better able to demonstrate content knowledge in their native language, regardless of language of instruction, should also be assessed in their native language. These native language assessments should parallel the content assessments in English in both content assessed and performance standards that are established.

Recommendation: Modifications in assessments and assessment procedures should be encouraged. In all cases, there should be state guidelines for mediated and alternative assessments to ensure that the assessments are as reliable and valid as possible.

Accountability Provisions

Recommendation: The state should develop a system or systems of school and LEA accountability that fully incorporate L.E.P. students. The performance assessments that are developed should be administered to a sample adequate to provide statistically stable estimates for schools and subgroups of students below.

Recommendation: In the case of L.E.P. students for whom adequate assessments in the native language are not available, and for whom

English language assessments are not appropriate, the school may choose to waive content performance assessments conducted in English. However, states must use alternative methods to hold schools accountable for the progress of these L.E.P. students. One option is to record zeroes for those L.E.P. students that have not been assessed. Another option is to monitor the progress of L.E.P. students through other means such as teacher ratings and grades.

Recommendation: There should be state guidelines for how long and on what grounds L.E.P. students are exempted from taking the same performance assessments in English as their English-speaking peers. States should set a limit on how long L.E.P. students can be exempted from taking the state performance assessments in English and this limit be based on their English proficiency levels rather than years in school or in English-only programs.

Recommendation: States should collect and report data on students' performance in the content areas (including E.S.L. and where appropriate, foreign languages) for the school, district and state as a whole, disaggregated by L.E.P. status of the students.

Recommendation: In so doing, states should determine what constitutes adequate progress for all students, including L.E.P. students. In making this determination, states should consider the results of the required assessments as well as other measures of school success, such as grade retention and dropout rates. In cases where L.E.P. students fail to make adequate progress, the state should take corrective action, including but not limited to ensuring the implementation of opportunity-to-learn standards.

State Use of Funds

After the first year, State educational agencies must use at least 90 percent of their allotment to make subgrants to LEAs for the implementation of the State improvement plan and the local improvement plans and to improve educator preservice programs and for professional development activities that are consistent with the State plan.

State educational agencies can use the remainder of the funds for state activities to implement the State improvement plan. Such activities include, among others: supporting the development and implementation of State standards and assessments, supporting the implementation of high-performance management and organizational strategies; supporting the development and implementation at the LEA and building level of improved human resource development systems; attending to the special needs of, among others, L.E.P. students; technical assistance and support for teachers, schools, LEAs, and others to improve teaching and learning, assessment, and accountability.

Recommendation: We fully support the provision that State activities attend to the special needs of L.E.P. students but urge that such attention be integrated into all State activities to implement the State improvement plan.

Subgrants for Local Reform and Professional Development

Local Education Agency Grants

LEAs wishing to receive funds must submit an application to the SEA that is developed by a broad-based local panel, appointed by the LEA, which is representative of the diversity of the students and community and includes teachers, parents, school administrators, business representatives, and others. The LEA is responsible for informing the LEA-appointed panel of progress toward reaching the goals of the local improvement plan.

The LEA application must include: a comprehensive local plan for district-wide improvement that is consistent with the state's improvement plan; a description of how the LEA will encourage schools to develop plans; information about how the LEA will implement programs to ensure improvements in school readiness; a description of how funds will be used; an identification of any federal or state requirements that it might need waived to implement its plan.

Recommendation: School staff and community members that represent L.E.P. students should participate in discussions of additional local standards for curriculum and instruction. In districts with Native American students, Native American groups must be meaningfully involved in the development of local plans

Recommendation: The educational needs and contributions of L.E.P. students must be considered in the LEA plans. In school districts that enroll L.E.P. students, the LEA plans should specifically address: the recruitment, training, and deployment of teachers and aides to provide effective instruction to L.E.P. students that is based on our knowledge from research and professional experience; the acquisition and use of instructional materials -- in all languages substantially present in the school district -- equivalent to those provided in the English language curriculum; the most effective means for providing L.E.P. students with access to high quality curricula, instructional materials, extra-curricular support systems and technology; the meaningful participation of language-minority parents; the inclusion of L.E.P. students in all programs offered by the district; and the development and use of assessment instruments appropriate to measure the academic, linguistic, and social progress of L.E.P. students.

Recommendation: LEA plans must give a place to Native American languages and social studies in all schools with substantial Native American enrollments.

Distribution of LEA Funds to Schools

After the first year, LEAs must distribute 85 percent of funds to individual schools to support school improvement initiatives toward providing all students in the school the opportunity to meet high academic standards. In any year, 50 percent of funds to individual schools will be made available to schools with a special need for such assistance, as indicated by a high number or percentage of students from low-income families, low achievement, or other similar criteria developed by the LEA. The LEA may waive this provision if there are not enough schools that apply for the grant for the LEA to comply.

Recommendation: LEAs must ensure that all schools in the district are aware of their right to apply for funds to support school improvement initiatives.

Preservice Teacher Education and Professional Development Consortia

SEAs will make competitive, peer-reviewed grants to LEAs or consortia of LEAs, IHEs, private nonprofit organizations, or combinations of these entities. To apply for grants, consortia must submit an application to the SEA that: describes how funds will be used to improve teacher preservice and school administrator education programs or to implement educator professional development activities consistent with the state plan; identifies the criteria to be used to judge improvements in preservice education or the effects of professional development activities; and contains other information the SEA determines to be appropriate.

Grantees must use funds for activities supporting the improvement of preservice teacher education and school administrator programs so that educators are prepared to help all students reach challenging standards and the development and implementation of new forms of continuing and sustained professional development opportunities for educators.

Recommendation: States should ensure that grant funds are used to support the following activities: improving teacher preservice and school administrator programs for personnel working with L.E.P. students; increasing the pool of teachers specializing in the education of L.E.P. students, particularly for LEAs that are experiencing ESL and bilingual teacher shortages; increasing the knowledge base of all teachers and administrators regarding the education of L.E.P. students.

APPENDIX B

Participants at two meetings on systemic reform and L.E.P. students sponsored by Stanford University and the Office of Bilingual Education and Minority Languages Affairs included the following people: Diane August (Independent Consultant), Linda Bennett (Office of Civil Rights), Anna Chamot (Georgetown University), Michael Cohen (U.S. Department of Education), Joseph Conaty (U.S. Dept. of Education), Ed De Avila (Independent Consultant), Richard Durán (U.C. Santa Barbara), Tom Fagan (U.S. Dept. of Education), Edward Fuentes (U.S. Dept. of Education), Ana García (U.S. Dept. of Education), Bernardo García (Florida Department of Education), Erminda García (Literacy Consultant), Gil García (U.S. Dept. of Education), Fred Genesee (McGill University), Joel Gómez (National Clearinghouse for Bilingual Education), Rene González (U.S. Dept. of Education), James Greeno (Stanford University), Elisa Gutierrez (Texas Education Agency), Kenji Hakuta (Stanford University), Else Hamayan (Illinois Resource Center), Wayne Holm (Navajo Division of Education), Jan Huber (Connecticut Department of Education), Mary Jew (San Francisco Unified School District), Barbara Kapinus (Council of Chief State School Officers), Rebecca Kopriva (California State University, Fresno), Julia Lara (Council of Chief State School Officers), Karen Lowry (California State Department of Education), Mary Mahoney (U.S. Dept. of Education), Paul Martínez (Evaluation Assistance Center, West), Diane Massell (Consortia for Policy Research in Education), Denise McKeon (American Educational Research Association), Alba Ortiz (University of Texas, Austin), Anita Bradley Pfeiffer (Navajo Division of Education), Lorraine Valdez Pierce (George Mason University), Delia Pompa (Independent Consulant), Cynthia Prince (National Goals Panel), Charlene Rivera (Evaluation Center East), Jeffrey Rodamar (U.S. Dept. of Education), Migdalia Romero (Hunter College), Suzanne Ramos (U.S. Dept. of Education), Mary Budd Rowe (Stanford University), Lynn Schnaiberg (Education Week), Deborah Short (Center for Applied Linguistics), Robert Slavin (Johns Hopkins University), Leonard Solo (Graham and Parks School), Lepa Tomic (U.S.D.E), Huong-Mai Tran (Mid-Atlantic MRC), Aída Walqui (Stanford University), Emily Wurtz (National Goals Panel). Rosa Castro Feinberg (Florida International University) did not attend the meetings but offered extensive comments on this draft.

Standards

Links Among Teaching, Learning, and Opportunity-To-Learn Standards and Strategies

"What the best and wisest parent wants for his own child, that must the community want for all of its children."

—*John Dewey*

Americans overwhelmingly support the notion of setting higher standards and goals for their schools. The American public also sees the importance of improving the schooling of all children, particularly the most disadvantaged.

- The 1991 Gallup poll showed 81 percent of the general public in favor of national achievement standards and goals for their community schools.
- In 1992, the Harris poll found that 81 percent of the public believes that if poor and minority children are not well educated, it will have a major effect on America's ability to compete in world markets.

Well-focused, challenging standards of performance and assessment can provide the starting point for systemwide improvement. They can provide an impetus and direction to move school systems beyond providing the education we currently have. Goals 2000 recognizes that high expectations for student educational achievement must be accompanied by upgraded curricula, enhanced instruction, and assurances that school systems will provide all students with opportunities to learn. It also recognizes that the ways to achieve these ends are myriad and depend a great deal on state and local contexts and roles.

What are opportunity-to-learn standards and strategies?

Opportunity-to-learn standards are indicators of school quality that focus on the extent to which schools are delivering challenging and meaningful content to **all** students. It goes without saying that all students include disadvantaged children, those with limited English proficiency, and those with disabilities.

Guiding the development and adoption of opportunity-to-learn standards is the principle that they be helpful to states and school districts in improving student performance. They focus on evidence that **all** students have access to curriculum, teaching, and a learning environment that will enable them to reach high standards.

Opportunity-to-learn strategies are the actions that states and communities intend to take to ensure that all students have a fair opportunity to reach the high content and performance standards set by the state. They become the expression of the state's role in ensuring that educational improvement reaches all schools and affects all students.

Why are opportunity-to-learn standards and strategies important in Goals 2000 plans?

Opportunity-to-learn standards derive from the fundamental tenet that educational equity and

This paper is offered to stimulate discussion and thinking in one of the key components to be included in Goals 2000: Educate America Act plans. We welcome revisions and suggestions for examples of effective state and local practices for future editions. Please send your comments to: Goals 2000; U.S. Department of Education; 400 Maryland Avenue, SW; Washington, DC 20202.

excellence are flip sides of the same coin. We cannot expect our students to learn what we do not teach them. Nor can we expect them to learn in an environment that does not support learning. Thus in addition to content and performance standards, Goals 2000 calls for the development of voluntary standards or strategies for the delivery of high quality educational services by schools and school systems.

To be useful and effective, opportunity-to-learn standards and strategies must be keyed to both curriculum content and student performance.

> The beginning point for the creation of standards for schools, then, is a set of beliefs about the way schools ought to be. Unless those who set standards are clear about their beliefs, they are likely to set inappropriate standards (for, example, class size or student/teacher ratios) or to fall back on using individual measures of student performance (Schlechty & Cole, 1992, November, p. 47).

Each state participating in Goals 2000 will identify strategies it deems appropriate that might include: upgrading the curriculum and instruction; affording ongoing, sustained professional development to all school staff; engaging parents and communities in educational improvement; and providing for a safe and secure environment and adequate facilities for learning. Curriculum should be rethought and its content and sequencing reevaluated in light of what children need to know at each level of schooling. To teach to high standards successfully, all teachers will need a deeper understanding of the subject matter and a greater awareness of effective instructional strategies to engage all students in learning. Schools and districts will need technical assistance that supports the kinds of intensive and ongoing staff development required to upgrade teaching in all classrooms. Teachers, principals, and parents will need to form partnerships to deliver a world-class education to every child.

How the states interpret this responsibility will differ considerably, ranging along a continuum from tightly focused monitoring of inputs to an exclusive emphasis on outcomes. Both ends of the continuum have their strengths and their shortcomings. Checklists of inputs are simple, standardized, and straightforward to administer, yet may hold back reform and stifle innovation. A focus on outcomes provides vision, but does not offer much guidance as to how to attain that vision. Undoubtedly, deciding upon standards that strike a balance between these two extremes will generate healthy debate about what makes for a quality education.

States will also vary in their capacity to deliver on this vision, an issue that arises when national standards are discussed. School systems differ in their ability to provide challenging curriculum through high quality instruction. Schools with high concentrations of disadvantaged students often have fewer essential resources, fewer well educated instructional staff members, and less community support than more advantaged schools.

Indeed, some analysts have argued that it is unfair to disadvantaged children to move forward with performance standards without first improving the conditions in the schools that enroll those children.

> Unless curricular reforms are buttressed by a coherent state system that links teacher training, teacher certification, the curriculum and testing together into a structure within which we can legitimately hold schools accountable, we will surely enlarge the differences that continue to exist between the quality of instruction available to rich and poor, minority and majority students (Consortium for Policy Research in Education, 1991, p. 3).

High standards justify efforts to improve learning opportunities in all schools, but particularly those schools with large concentrations of children at a disadvantage. At the same time, the Goals 2000 legislation includes provisions that nothing in the Act can be construed to "mandate equalized spending (or) national school building standards" or "create a legally enforceable right for any person against a state, local educational agency, or school based on a standard or assessment certified by the (National Education Standards and Improvement) Council or the criteria developed by the Council for such certification." The Department recognizes that some school systems lack the resources needed to make fundamental changes in their schools. To assist, the Administration's proposal for the reauthorization of Title I, the largest of the Elementary and Secondary Education Act programs, calls for greater funds to be targeted on the poorest school systems.

What are examples of promising standards and strategies?

Piloting Opportunity-to-Learn Standards. The National Governors' Association launched a pilot project with four states to encourage discussion about the potential uses of opportunity-to-learn standards. The four states—California, New York, South Carolina, and Vermont—approached the development of opportunity-to-learn standards differently, yet were guided by similar principles. The value of opportunity-to-learn standards is their usefulness in helping improve student performance. States and districts should use measures that are directly linked to improved student achievement, not simply whatever input variables (e.g., student/staff ratios, staff salaries, per-pupil spending) are the easiest to quantify . The measures used should enhance the ability of school staffs to monitor and assess their own programs, not add to regulatory burden.

Vermont's Domains for Opportunity to Learn

In defining a common core of learning and developing an assessment aligned with the content and performance standards, Vermont has articulated seven domains of support necessary to ensure a fair opportunity to learn for all students.

- The school and community share a common vision of expected student performance for all students to meet the state's education goals.
- The curriculum is designed and implemented so that all learners achieve the content and performance standards.
- Assessments measure the current level of learner performance in terms of the vision.
- Effective professionals facilitate learning.
- The educational resources are sufficient for all learners to attain the very high skills.
- The learning environment enhances high-performance learning.
- The school's organizational structure is designed to facilitate attainment of the desired student performance measures.

Vermont intends to use its standards as a diagnostic tool to identify areas of needed improvement for schools whose students are not achieving desired results on the student performance assessment.

Equally important is to decide who will assess whether each school is meeting the standards. Professional judgment based on careful review and reflection by experienced teachers and other practicing educators is key to determining whether a school is affording its students an opportunity to learn the desired content. To support assessments that offer more than a simple check list of inputs requires a thorough understanding of potential problems and a full repertoire of possible solutions available to knowledgeable educators. Moreover, the assessment by other teachers and school professionals is likely to have more legitimacy with school staff than a quantitative report that may not reflect an indepth review of the school site.

Putting Opportunity-to-Learn Standards into Practice. Quality review teams and inspectorates are two models for using opportunity-to-learn standards for school improvement. Quality review teams provide for regular school reviews by teams of experienced teachers, drawn from outside a district, to assess the appropriateness and quality of a school's resources and practices. Reviews might occur at regular intervals (for example, every three years) in areas of high need and less often elsewhere. They could also be triggered by particularly low school performance on student assessments. The results of the reviews could provide feedback to the schools, indicate to districts the schools' needs for assistance, and, under extreme circumstances, trigger stronger accountability mechanisms.

Program Quality Review in California

Program Quality Review (PQR) in California is an on-going school improvement and review effort that is based on examinations of both instructional processes and student outcomes. Closely linked to the state's school improvement efforts, PQR is implemented through both internal and external school-based reviews. Leadership teams at each school site prepare for outside reviews by external PQR teams by reviewing multiple data sources, including California report cards and other outcomes. New efforts are underway to focus PQR reviews on a single curriculum area and sampled examples of students' work.

Inspectorates are another approach, one borrowed from overseas. School inspectors in Ireland, England, and France are former teachers who work for the central school authority, the Ministry, serving as technical advisers and quality-control monitors for a group of schools. They conduct professional development activities, oversee and evaluate the progress of novice teachers, assist schools in obtaining resources, and work with principals and teachers to improve their schools. If implemented in the United States in the context of a commonly shared curricular strategy, a system of inspectors could be a powerful source for sharing ideas and enforcing common standards; inspectors could operate as a professional force in the political arena. They could also serve as a warning system for schools that are not meeting the standards.

Quality Review Initiative in New York

Modelled on the British Inspectorate, the New York "quality review initiative" encourages schools to engage in their own evaluation and review of the quality of teaching and learning, coupled with week-long state inspections performed by teams of teachers, principals, parents, and community members from around the state. These visits—which will be based almost entirely on in-class observations—are designed to (1) offer schools new information and perspectives from which to view their existing policies and procedures, (2) help teachers and administrators to recognize and learn from the instructional practices and learning goals in their schools, and (3) support and assist schools in realizing their own goals for the improvement of teaching and learning.

While the Quality Review Initiative reflects the spirit of the British Inspectorate, it differs in its emphasis on self-evaluations, rather than reviews from outside teams, in order to create a "culture of review" within each school.

What areas might opportunity-to-learn standards include?

Each state will have the flexibility under Goals 2000 to design opportunity-to-learn standards that fit its needs. One way, but not the only way, to think about these standards is to consider them as having three parts. They would spell out criteria for determining whether a school (1) has the essential staffing and other resources to offer all of its students the opportunity to learn the content to a high level of performance (**resource standards**), (2) actually implements a program of study likely to provide its students such an opportunity (**practice standards**), and (3) meets challenging goals, as measured by the percentage of students who successfully achieve a high performance level (**system outcome or performance standards**). The list that follows is largely derived from possible indicators developed by O'Day and Smith and is intended for suggestion only.

Resource Standards. Assessing whether the resource standards have been met for any given school would be a matter of defining and addressing such questions as:

- Does the school have the necessary resources in sufficient quantity to make them available to all relevant staff and students? What is the quality and availability of curriculum, instructional materials, and technologies and do all students have adequate access to them?
- Are the resources appropriate, not only for the overall strategy, but also for the specific students in that school? That is, are they aligned with the content and performance standards and in a form (for example, a student's native language) that will make the desired content and skills accessible to the students in that school?
- Are the necessary resources of sufficiently high quality, both in content and in form, to enable the students to learn the content to a high level of performance?
- Are the resources sufficiently well-managed to support instruction?

Practice Standards. The practice standards should parallel the resource standards but focus on implementation. Schools are unlikely to meet practice standards unless resource standards have also been met. These standards would address such questions as:

- Does the curriculum as taught in the school reflect the content and performance standards? Is the classroom curriculum and pedagogy effective and appropriate to the needs and cultures of the particular students in the school? Do curriculum and instruction accommodate the needs of disadvantaged children and children with disabilities for supplemental services?
- Does the school build on an understanding of the cultural, linguistic, and other strengths of its students? Does the school through its policies, curriculum, and instruction ensure non-discriminatory practices on the basis of gender?
- Does the school offer a safe and supportive environment for teaching and learning?
- Do the professional development activities of the school focus on improving the capacity of the school to give all students the opportunity to learn the content of the curriculum standards?

System Performance (Outcome) Standards. Resource and practice standards focus on inputs—what the school is providing to its students. School performance standards look at the effect of what is provided. They determine whether students are actually learning the challenging content of the curriculum standards. (Moreover, alignment between the curriculum and the assessment instruments would provide a degree of content validity to the measures well beyond that provided by current tests.) These standards would look at the aggregate performance of a school's students to answer such questions as:

- Does the school reach a satisfactory level of performance in providing all students the opportunity to learn challenging content to a high standard?
- What progress does the school make in increasing the percentage of students who score at acceptable levels from one year to the next?
- Do all major subgroups of students in the school attain acceptable levels? Texas, for example, has developed a system for school-level reporting of student performance that disaggregates scores by student race/ethnicity, gender, and educational disadvantage. The state uses the measures to identify "low-performing" schools, requiring the school to hold public hearings and develop an improvement plan.

Where can I get more information?

Organizations

National Governors' Association
Task Force on Opportunity-to-Learn Standards
Hall of the States
444 North Capitol Street
Washington, DC 20001-1572
(202) 624-5300

Center on Organization and Restructuring
of Schools
School of Education
Wisconsin Center for Education Research
University of Wisconsin-Madison
1025 West Johnson Street
Madison, WI 53706
(603) 263-7575

Consortium for Policy Research in Education
Eagleton Institute of Politics
Rutgers University
90 Clifton Avenue
New Brunswick, NJ 08901
(909) 828-3872

Council of Chief State School Officers
One Massachusetts Avenue, NW
Suite 700
Washington, DC 20001
(202) 408-5505

Reading List

CPRE Policy Briefs (1991). Putting the pieces together: Systemic school reform.

Consortium for Policy Research in Education.

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CPRE POLICY BRIEFS
REPORTING ON ISSUES AND RESEARCH IN EDUCATION POLICY AND FINANCE

Developing Content Standards: Creating a Process for Change

Education leaders at every level of the system are developing standards to specify what students should know and be able to do in key subject areas. Local and state groups, professional organizations, and consortia of states and districts are constructing standards.

The current movement to develop challenging, ambitious expectations for student learning can be traced to the pathbreaking efforts of the National Council of Teachers of Mathematics (NCTM) and states like California in the mid-1980s. Now, 45 states are planning, developing, or implementing new curriculum frameworks (Pechman and LaGuarda 1993). Nearly every major subject-matter association is engaged in the process of defining standards. National projects, like the National Board for Professional Teaching Standards and the New Standards Project, see the development of standards as a key element of their missions. And Congress is considering proposals to extend standards-based reform to federal programs.

Defining leading-edge, "world class" standards is viewed by many as a critical component of coherent, systemic reform. But the form and purposes of specific standards are diverse. Many states plan to use standards as anchors for other state policies, including policies about curriculum materials, teacher professional development, and student assessment. Some are elaborating upon general standards in more detailed curriculum framework documents; others are using the terms "standards" and "curriculum frameworks" interchangeably and producing one set of content specifications.

The policy instruments emphasized also vary from effort to effort. For instance, the New Standards Project, a coalition of 18 states and five school districts, is focusing not on content specifications but on performance-based assessment. Content standards will be specified in the course of developing assessment standards.

Many questions are raised by the use of standards to promote improvement. Can they be used to enhance opportunity to learn? Will they improve teaching and learning? Will standards lead to higher performance by all students or will they produce new inequities? Will the standards be reinforced by the broader society, by colleges and employers, for example? Such questions are the subject of debate and discussion in schools, districts, and policy arenas throughout the United States.[1]

Aside from these issues, there is another crucial question—how are standards actually developed? One of the most cited failures of previous curriculum-reform efforts was their neglect of process. This brief deals with an important challenge of standards-based reform: creating a process to develop standards.

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[1] Good discussions of other complicated issues surrounding student standards are found in Smith and O'Day 1991; O'Day and Smith 1993; Darling-Hammond 1992; Porter 1992; Porter 1993; Cohen and Spillane 1993; Fuhrman and Massell 1992.

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The brief outlines some lessons suggested by past and current efforts to develop ambitious standards. It draws on studies by CPRE researchers of standards-setting processes in five states: Vermont, Kentucky, New York, California and South Carolina, and three national curriculum standards projects. The projects are NCTM's efforts to develop standards for math instruction and evaluation, the College Board's design of its Advanced Placement program, and the National Science Foundation's efforts of the 1950s and 1960s to reform science curricula (Massell 1993; Massell, Kirst, Kelley and Yee 1993).

Consensus vs. Innovation?

A critical component of nearly all current standards-setting efforts is a serious commitment to forging broad public as well as professional consensus. But the idea of establishing agreement on expectations for student learning is new for American schools (Cohen and Spillane 1993; Fuhrman 1993). Without historical models to follow, states, localities and national groups are experimenting with new structures and procedures to reach broad consensus. They are drawing participants from a cross-section of interested parties, including teachers, parents, students, administrators, university faculty, business and community leaders, and policymakers.

Educators today are keenly aware of the problems that result when goals of change are not widely shared (Carlson 1992). In emphasizing consensus, standards groups are trying to avoid the mistakes of past curricular reform projects that neglected the social and political realities of implementation (McLaughlin 1991; Elmore 1993).

Establishing a broad consensus, however, is often in tension with achieving leading-edge standards. As one participant in the NCTM effort said:

> On the one hand, if these standards were to stand as the banners of the community, then they had to reflect shared values and commitments. On the other hand, if change was desired, then these standards had to do more than reflect current practice. New ideas were needed, ideas that departed from extant assumptions and practices. (Ball 1992, 2–3)

NCTM did, in fact, achieve a high degree of consensus around what many perceive to be leading-edge content standards. It embarked on an extensive consensus-building process which involved thousands of practitioners, academics and other professionals as well as members of the lay public in different stages of agenda-setting and capacity-building. While some disputes linger, the degree of acceptance NCTM has achieved is what other standard-setting groups aim to emulate.

Given the goal of achieving consensus while at the same time developing challenging and meaningful standards, the following points may inform the process.

✓ ***A useful start to standard-setting efforts is to explore the nature of each subject-matter area under consideration.***

Each field poses unique challenges to the problem of achieving consensus, and an understanding of the "terrain" of each area can help inform decisions about how to develop standards.

In many respects, current standards projects are operating in an environment with a remarkable level of agreement on the broad substance and direction of the reforms needed to create excellence. Across the subject-matter fields, for instance, there is a strong push for higher-order thinking and active models of learning; more interdisciplinary learning and understanding; more in-depth coverage of a core set of topics rather than wide, but superficial coverage of many topics; and more challenging content for *all* students.

But while consensus exists at this broad and general level, when it comes to more specific decisions, many professional and public disagreements arise. For example, disciplines differ in the extent to which subspecialties are discrete and the degree to which they can be readily linked.

In contrast to the field of mathematics, highly distinct and competitive subgroups exist within disciplines like science and social studies. All of the separate subgroups in science, like biology, physics, and chemistry, compete for resources and time in the limited school calendar. A common attitude is "the standards are okay as long as they represent more of what I teach." Debates over the actual content that should be included in science or social studies standards are more contentious than in fields like mathematics.

Disciplinary linkages to ethical, moral, religious, and social debates must also be considered. Defining content in fields such as the sciences and social studies is almost certain to ignite public and professional passions over religion, evolution, and multiculturalism. In New York, the conflict over multiculturalism in the social studies curriculum has pervaded the consensus-building process.

Careful research into the background of each subject area can help standards developers anticipate the challenges, assure representation that crosses divisions within a field, and deal effectively with such issues when they arise.

✓ Processes for setting standards involve several stages of agenda setting, development, and review intended to encourage professional and public participation.

Approaches to balancing representation differ significantly across various state and national efforts. Some place greater emphasis on grassroots involvement, some stress professional participation, and others rely on a blend of strategies at different stages of the process. Vermont's broad-based approach to standard setting (members of the public and teachers are involved in all stages of the process, and all teachers in the state receive draft copies of the standards for review) grows out of a long state tradition of citizen governance. The state education department sponsored a number of public focus forums across the state to generate standards for what students should know and be able to do.

In contrast, California has emphasized the participation of leading educators to create cutting-edge frameworks, strongly based in research and expert opinion. As a result, the frameworks have gained widespread legitimacy among teachers. South Carolina looked closely at the California experience and also turned primarily to teams of professional leaders. But the state then circulated draft frameworks to large groups of both professionals and the lay public. After using a multifaceted process that included telephone surveys and consultations with large committees and citizen focus groups to identify goals, Kentucky used professional task forces to draft goals, learner outcomes, and curriculum frameworks.

Even the most broad-based, consultative processes can only reach a fraction of the citizens and a portion of the teachers and administrators who will ultimately use the standards to guide instruction. In the end, each school and district will have to develop its own versions or understandings of standards. Including the public and teachers in state or national efforts probably produces a better as well as a more legitimate framework, but it will not preclude local debates over implementation.

✓ Standards development activities require reasonable time schedules.

One factor that seems to be a crucial precondition for developing consensus is *time*. One of the keys to NCTM's success was a slow, lengthy development process which took nearly a decade to complete. The association took plenty of time to educate the community about the need for standards, conduct research before the development committees met, and to solicit review and feedback.

Current reform efforts are operating in a more politically charged environment than existed when NCTM was deliberating. With the possibility that federal programs will require states to develop standards, and with state political leadership impatient for standards-based reforms to get underway, 10-year developmental processes are no longer practical. Despite the press for speed, however, allowing sufficient time for a broad review and feedback process is a critical component of any consensus-building strategy.

✓ Standard setters are finding that different subject areas are not amenable to a single, rigid format.

While a common format may be desirable for some purposes, rigid formats may be unsuitable for different content areas.

Common formats might be useful for large issues that cross areas. For example, a state, association, or district might decide whether standards in each subject should address only what students should know and be able to do or also discuss assessment and teaching pedagogy. The intended purpose of a document is an important consideration which may lead to common design features. For instance, because one purpose of the California frameworks is to guide state-adopted textbook selection, each framework must contain a section stating adoption criteria.

However, the experiences of several groups suggest that the idiosyncracies of different subject-matter areas may call for some differences in format. Assessment developers working on one of the National Board for Professional Teaching Standards' teams argued that the five propositions of good teaching which all the standards-writing groups were to follow squeezed out pedagogical and content logics unique to their own disciplines (Pence and Petrosky 1992).

California originally had an outline for all frameworks, but abandoned it when staff reported that it was too constricting. Thus formulaic requirements may thwart tailoring the structure, sequence, and design of the document to the unique pedagogical and substantive demands of the different discipline areas.

✓ *Standards entities require mechanisms to "bridge" subject areas and ensure cross-disciplinary discussion.*

Coherence across the subject-matter standards (not just within) is necessary to ensure that as a collective the standards are "doable" during the school day and year. Most of the National Science Foundation's 1950s and 1960s science curriculums did not take into consideration the competing demands and interests which fight for time and resources within a school. Additional time for science meant that time for other subjects had to be reduced, and science did not win out in the end.

Encouraging cross-disciplinary discussions during standard setting may improve the prospects for developing interdisciplinary teaching and learning. In addition, interdisciplinary efforts can be one way to avoid outpacing the capacity of schools and classrooms. For example, in the absence of cross-disciplinary approaches, elementary teachers will have to rapidly absorb new, distinct standards for each separate subject.

Some state standards efforts are doing much more than bridging the disciplines; they are trying to create learner outcomes that integrate and avoid distinctions among subjects. It is too early to assess the pros and cons of separate subject frameworks vs. integrated documents, but it is important to remember that teachers are accustomed to disciplinary distinctions and subject-based curricula and may need special support to use integrated documents as guidance. As standards-setting efforts negotiate the continuum from free-standing, nonintegrated disciplinary frameworks, to more articulated/coordinated efforts, to frameworks with interdisciplinary themes and sections, to totally integrated sets of outcomes, they will have to decide whether to accept or to restructure traditional, disciplinary approaches to the organization of knowledge.

✓ *Decisions about the best level of detail and specificity are important components of standards-setting efforts.*

The specificity issue raises many questions about the flexibility of the standards, their ability to lead, and their ability to provide substantial guidance to other policy components such as assessment. On the one hand, people argue that the standards should be broad enough to allow for many different curriculum designs and teaching approaches. On the other hand, broad standards are subject to multiple interpretations and may lose their potential to promote high quality and to anchor other policy efforts. For example, some have criticized the NCTM standards for lacking sufficient precision to guide assessment, program selection, or program evaluation. The balance between specificity and flexibility can be a difficult one to achieve, but standards efforts need not see these as either/or alternatives. For example, standards can provide the flexibility for school and teacher choice by designing alternative strands of relatively precise standards.

✓ *Standards efforts need mechanisms for dealing with controversy.*

While careful research into the nature of the subject area can help development processes identify potential problem areas, it will not protect them from the lobbying of citizens and various interest groups when controversial issues inevitably arise.

The very nature of the standard-setting exercise, which requires making explicit decisions about which content objectives are to be included, invites debate. For example, efforts to promote outcomes-based education in different states are being attacked by people who view both the content of the outcomes and the shift away from traditional input requirements like credit hours as a way of imposing values counter to their beliefs, or straying from the central purpose of schooling.

Many states' standards have identified not just academic outcomes, but also affective outcomes, such as Pennsylvania's goal that students shall "understand and appreciate others." The outcry over this and similar statements that seemed to focus more on values than academics was vociferous, and Pennsylvania subsequently backed away from some of its outcome statements.

Institutional mechanisms which buffer standard setting from the direct control of politics can help protect the integrity and leadership potential of the standards, as can strong leadership. NCTM, for example, set up a commission to oversee the standards writing groups, thus providing a forum for debate. In California the active leadership of the state superintendent helped to steer the process through many political battles.

Some level of controversy will be inevitable. Equating consensus with the absence of controversy can produce standards which use vague, open-ended language subject to multiple interpretations. Vague, agreeable standards are unlikely to change school teaching and learning. Similarly, standards committees in some of the highly fractured fields like science or social studies may be tempted to patch a consensus together by including every subdiscipline, and every demand, equally, in the final standards document. But this approach can result in a fragmented and incoherent curriculum which emphasizes breadth of coverage over depth of inquiry, a result which is certainly not "world class."

Another approach to consensus-building is the strategy used to develop the College Board's Advanced Placement (AP) curriculum and examination system. To produce these documents, the College Board surveys participating colleges and universities to closely align the AP program with current college curricula. In this way the program reflects the actual, "average" curricula. However, the survey approach also restricts the level of innovation included in the content standards. In other words, by limiting itself to the curriculum that is, Advanced Placement courses do not often move the curricula to what it ought to be.

✓ Standards-setting processes can be the initial step in continuing capacity-building efforts.

Because standards activities involve numerous educators and citizens, they build understanding and support for reform. But capacity building does not end once the standards are developed and adopted. NCTM's lengthy review and feedback process aimed at engaging the entire mathematics community and building familiarity with and giving legitimacy to the standards. The standards development process also indicated where continuing capacity building was most needed, such as, in the area of using calculators for computation.

In California, the framework development process has been followed by efforts to support curriculum development at the district level. The state department issues many publications to support curriculum development based on the frameworks, provides pamphlets for teachers on supplemental literature that supports the frameworks, issues booklets for parents, and develops model curriculum guides for grades 9–12.

In contrast, many of the National Science Foundation efforts in the 1950s and 1960s saw educators as consumers of reform who needed retraining, rather than as partners in the curriculum reform effort. There was little connection with continuing staff development and leadership or with teacher education. Therefore, only a few teachers were prepared to use the new teaching methods required by the curriculums, and even where they were adopted, they were frequently taught in the "old" way.

Despite efforts of states like California to involve and assist teachers, investment in building capacity to support standards-based reform is sadly inadequate. The emerging standards call for far-reaching changes in curriculum and instruction. However, most efforts to prepare teachers and administrators for the changes or to assure necessary technical assistance are small scale and temporary. Standards systems and processes can be helpful in alerting policymakers and the public to the need for long-term, substantial capacity building.

✓ Standards will require revision over time.

One of the challenges confronting current standard-setting efforts is establishing a schedule for revision. While it may seem premature to contemplate changing newly minted standards, revision efforts will be needed lest current standards become calcified in policy and unresponsive to knowledge advances in the particular fields. The difficultly here is not only the human and financial resources involved in revisiting the efforts. The fact is that revision schedules must anticipate the significant period of time it takes for standards to sift through the policy system.

For example, even though each California subject-matter framework is scheduled for review only once every eight years, it takes about two years for publishers to respond to the new standards, and more time for tests to be developed and meaningful staff inservices to occur. As it stands, elementary teachers are faced with revising a new subject just about every year (Marsh and Odden 1991). Thus the revision schedules standards groups employ must balance the need to incorporate new knowledge with the concern that frequent revision can overwhelm the system.

Conclusion

This brief attempts to distill lessons from past curriculum reforms and from recent efforts of states, localities and associations to set standards for student learning. Several practical suggestions for the process of standard setting emerge. Standards efforts should:

- survey each content area, its domains and issues, in advance of setting standards;
- develop iterative processes for including professional and public participation;
- construct reasonable timetables for completion of standards;
- consider the use of multiple formats for various subject areas;
- develop activities to bridge disciplines;
- seek to remain flexible while developing standards that are specific enough to provide meaningful guidance;
- anticipate and address controversy; and
- support continued capacity building and plan for revision over time.

This list gives rise to two final thoughts about standards activities. First, while a number of aspects of standard setting appear to require tradeoffs and compromises, ways can be found to achieve balance that avoid sacrificing one value on behalf of another. States, localities and associations have found ways, through back- and- forth consultation and review, to include both professionals and the public; most efforts have not found it necessary to give up professional leadership to achieve public support or to forgo broader understanding in order to create frameworks respected by both practitioners and scholars. Similarly frameworks can be constructed that are both specific and flexible; neither goal need be scrapped in behalf of the other.

Second, standards efforts clearly have purposes and raise issues that extend beyond the seemingly narrow function encompassed by a term like "framework development." Standards processes raise difficult values questions and must deal with the controversies they unleash; they must provide for public understanding and support long-term capacity-building for professionals. Whatever the structures and mechanisms that states, districts and associations use for standards development, they must accommodate these varied and continuing needs.

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CPRE Researchers Examine Standards, Systemic Change, and the Evolution of Reform

Many of the complicated issues surrounding student standards are discussed in these publications written by CPRE researchers:

New!

Ten Years of State Education Reform: Overview with Four Case Studies
Diane Massell and Susan H. Fuhrman
November 1993 (No. RR-028), $15.

This report examines 10 years of reform following publication of *A Nation at Risk* in 1983. It focuses on policy developments and reform trends, discussing the activity of federal, state, and local interests. The report includes analysis and case studies of reform in four states (California, Florida, Georgia and Minnesota) and highlights research findings from seven additional states.

Issues and Strategies in Systemic Reform
Susan H. Fuhrman and Diane Massell (with associates)
November 1992 (No. RR-025) 30 pp., $10

Since the late 1980s, support has been growing for a "systemic" vision of reform which would pair ambitious, coordinated state policies with professional discretion at the school site. This report addresses questions regarding the vision driving systemic reform; how political support of such reform is maintained; and the equity implications of systemic reform strategies.

Education Reform from 1983 to 1990: State Action and District Response
William A. Firestone, Sheila Rosenblum, Beth D. Bader, and Diane Massell
December 1991 (No. RR-021) 68 pp. $12

Discusses some of the patterns of educational reform during the 1980s and major issues reformers faced including: (1) tension between focusing on basic skills and encouraging higher-order thinking; (2) problems of at-risk students; (3) changes in governance; (4) state response to district variation; and (5) the need to bring more coherence to disparate educational changes. The authors also address how district responses to state policies reflected local concerns, the financial context for education during this period, and implications for future reform efforts.

New Book Sponsored by CPRE

Designing Coherent Education Policy: Improving the System
Susan H. Fuhrman, editor

Available from Jossey-Bass, Inc., 350 Sansome St., San Francisco, CA 94194; 415-433-1767 (310 pp., $32.95).

This book offers the first in-depth look at systemic school reform. It shows educators at the district, state, and federal levels how to coordinate various elements of the policy infrastructure around a new set of ambitious, common goals for what students should know and be able to do.

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CPRE is funded by the U. S. Department of Education's Office of Educational Research. The Policy Center is supported by grant #OERI-R117G1007; the Finance Center is supported by grant #OERI-R117G10039.

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CPRE Gets New Addresses, New Member Institution

September 1993 — The Finance Center of CPRE, formerly based at the University of Southern California (USC), is now headquartered at the University of Wisconsin-Madison (UW). Allan Odden, the Center's co-director, has accepted a post at UW. The University of Michigan is CPRE's new institutional partner; David Cohen has moved there from Michigan State University. Researchers at USC and Michigan State will continue to work on CPRE projects. Finally, the Policy Center of CPRE has moved into a new building (and has new phone and fax numbers).

Please update your records with the following information:

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Note on Opportunity to Learn *Brief*

The *Brief* that follows presents a quick overview of some of the issues surrounding opportunity-to-learn standards. It also describes a research project that examined different instructional practices and discusses one possible use of opportunity-to-learn standards.

This paper, like others in the resource package, is provided to encourage discussion and does not necessarily represent the views or position of the U.S. Department of Education. Goals 2000: Educate America Act contains specific language on opportunity-to-learn standards and strategies that is not reflected in the attached paper which was published prior to the passage of the Act.

For your information, the definition in the Act is as follows:

Sec.3. Definitions

(7) the term "opportunity-to-learn standards" means the criteria for, and the basis of, assessing the sufficiency or quality of resources, practices, and conditions necessary at each level of the education system (schools, local education agencies, and States) to provide all students with an opportunity to learn the material in voluntary national content standards or State content standards.

Opportunity-to-learn standards or strategies are discussed in other parts of the Act, including:

Title II-National Education Reform Leadership, Standards, and Assessments, Part B-National Education Standards and Improvement Council, Sec. 213 (c) Voluntary National Opportunity To-Learn Standards. This section discusses the National Education Standards and Improvement Council.

Title III-State and Local Education Systemic Improvement, Sec. 306. State Improvement Plans, (d) Opportunity-to-Learn Standards and Strategies. This section explains each State's responsibilities regarding the development and implementation of opportunity-to-learn standards or strategies.

Section 306(d) of the Act reads as follows:

(d) Opportunity-To-Learn Standards and Strategies.-

(1) In General.-Each State improvement plan shall establish standards or strategies for providing all students with an opportunity to learn. Such standards or strategies shall include such factors as the State deems appropriate to ensure that all students receive a fair opportunity to achieve the knowledge and skills as described in State content standards and State performance standards adopted by the State.

(2) Implementation.-Notwithstanding any other provisions of this Act, the implementation of opportunity-to-learn standards or strategies shall be voluntary on the part of the States, local education agencies, and schools.

Brief

Opportunity to Learn

by Andrew Porter

Increasingly, new goals for American education are being communicated through curriculum and achievement standards. New national curriculum standards have been published or are underway in every core academic subject. States are revising their curriculum frameworks and assessment programs to be consistent with national education Goal Three which calls for competency in challenging subject matter for all students. The hope is that these curriculum and student achievement standards will lead teachers to bring their instruction into alignment with the new curriculum standards, and that student performance will rise to meet the new achievement standards. Many believe that for curriculum and achievement standards to have this effect, high stakes for students, teachers, and schools, tied to student performance, will be necessary.

To maximize fairness and equity for students, another set of standards has been proposed, opportunity to learn (OTL) standards. OTL standards are to represent what schools and teachers must do if the new curriculum and achievement standards are to be met. For some this translates into lower class size, certified teachers, more money, and the like. For others, and as argued here, this translates into more specific standards for content and pedagogy. The U.S. Congress is calling for opportunity to learn standards as a part of President Clinton's Goals 2000 legislation. The National Governors' Association has funded several states to develop OTL standards as demonstrations. The 1992 report of the National Council on Education Standards and Testing was the first public report calling for such standards.

This brief is to inform the policy debate about OTL standards. Three possible purposes are presented. One of these, OTL indicators, is illustrated through examples of monitoring curriculum reform in high school mathematics and science.

Three Possible Uses of OTL Standards

First, OTL standards might be the basis for school-by-school accountability. Second, OTL standards might provide an indicator system that would describe the extent to which teachers across districts, states, or larger regions implement instruction consistent with curriculum standards. Third, OTL standards might present a clearer vision of challenging curriculum content and pedagogy for all students.

BRIEF NO. 7 FALL 1993

Three Possible Uses of OTL Standards 1
OTL Indicators 2
Summary and Conclusions 5
For Further Reading 5

Accountability

Of the three possible uses, formal school-by-school accountability is both the most talked about and the least attractive. A district or state could hold schools accountable for delivering adequate OTL to all students. The U.S. Congress is considering holding states accountable for having approved OTL standards; state participation in certain federal funding programs may be conditioned on approved OTL standards.

States, districts, and other organizations have a long, unproductive history of using inputs rather than student outcomes to hold schools accountable. Examples are school accreditation programs and detailed lists of state requirements for school practices that exist in virtually every state. These old notions of OTL, defined in terms of inputs (e.g., number of certified teachers, size of library) have not had the desired effects. To the contrary, they have invited micromanagement that has dissipated energy away from high quality assessment, curriculum, and instruction. As a result, there has been a shift toward school accountability for student outcomes, rather than inputs. Using opportunity to learn standards for school accountability could have the negative effect of shifting attention away from outcomes and once again back to inputs.

Indicators

There are at least three reasons for creating a system of OTL indicators. One is simply to describe with some precision the kinds of educational opportunities schools provide. Citizens and taxpayers have a right to this information. A second reason is that OTL indicators can help to chart the progress of school reform. The NCTM Curriculum and Evaluation Standards for School Mathematics call for major changes in mathematics education. OTL indicators, by showing the kind of curriculum and instruction actually delivered, will inform us about the degree of success in achieving these changes. A third reason for OTL indicators is to provide information that can offer explanations when student achievement goals are not reached. OTL indicators may point to possible causes and thus to possible solutions for inadequacies in school outputs. The users of OTL indicator information could range from the National Goals Panel, to state reformers, to school principals and individual teachers who want to reflect on their practices.

Vision

OTL standards can provide a clearer vision of good practice. If schools and teachers are expected to accomplish the massive curriculum reform of offering "ambitious content" for all students, they will need a great deal of support. But first and foremost, they will need to have a clear understanding of what changes are necessary. OTL standards can offer detailed accounts of specific curriculum content, effective instructional practices and school strategies that support the goal of ambitious content for all students. Such standards would guide school reform and staff development. An excellent example is NCTM's Professional Standards for Teaching Mathematics (1991). Without such standards it will be difficult for principals and teachers to visualize coherent and professionally solid paths of curriculum improvement.

OTL Indicators

What is a good indicator of OTL? Amount of instructional time on specific topics? The particular books studied? Availability of equipment (computers, lab materials)? Access to good teachers? The main criterion for selecting indicators should be utility for predicting student achievement. The best predictors of student achievement that are within a school's control are the content actually taught, the instructional strategies used, and the standards for achievement evident in testing and grading. In combination, the time and emphasis given to these matters define opportunity to learn. Some possible OTL indicators are described below.

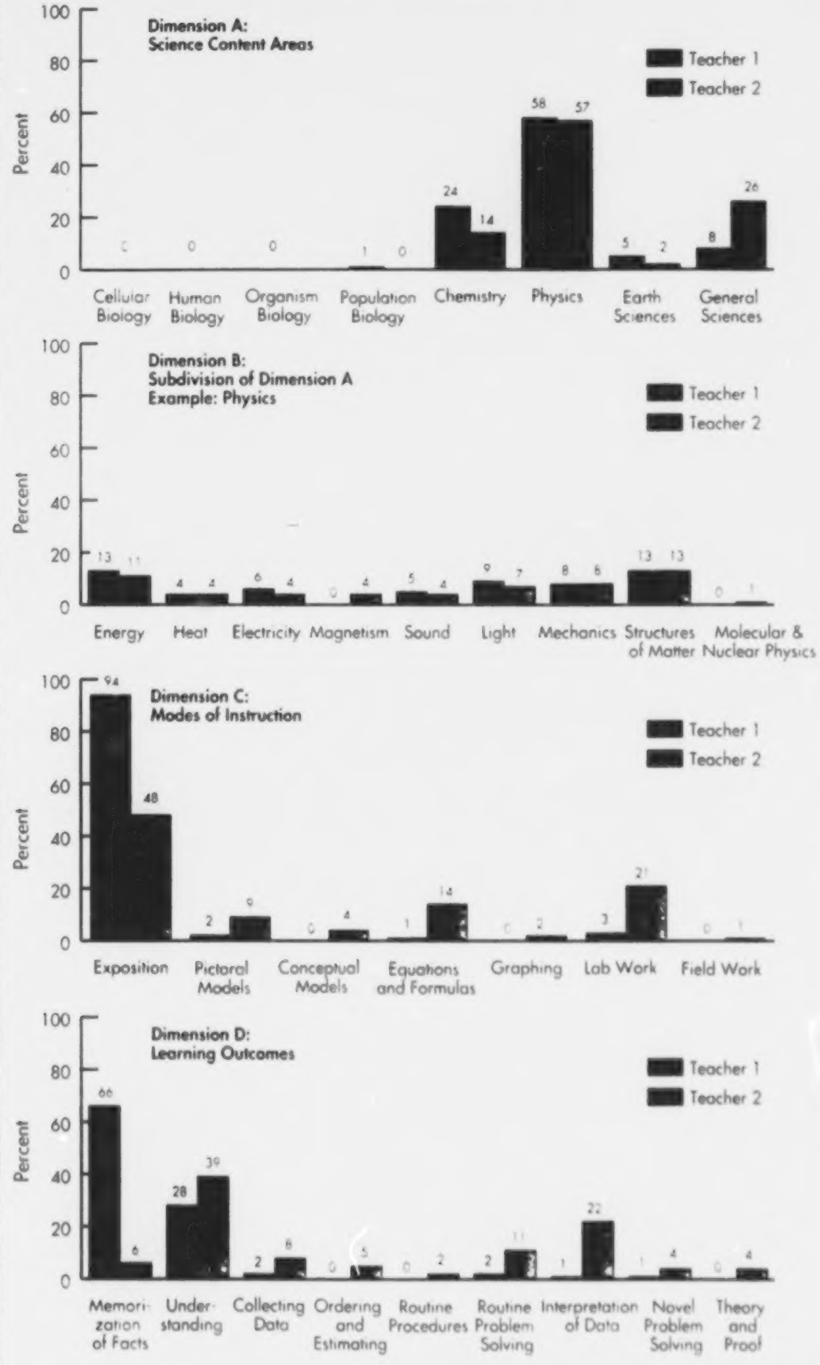
A Language for Describing OTL

If OTL is to become a focus for school improvement and if indicators of OTL are to be used to keep track of progress, then languages for describing OTL must be developed. Recently developed curriculum standards are a good start, but they are too general and incomplete to describe the enacted curriculum in ways that predict student achievement.

More specific languages for describing high school mathematics and science illustrate the kind of indicators that can be useful. Each subject is represented by a four-dimensional taxonomy. The first dimension lists the general domains of content unique to each subject. Dimension A of math has ten levels including arithmetic, algebra, and statistics. Dimension A of science has eight levels including four types of biology, chemistry, and physics. Dimension B breaks each level of Dimension A into greater detail. For example, levels of B within statistics include collecting data, distributional shapes, central tendency, variability. Levels of B within physics include heat, electricity, sound, light. Dimensions C and D, the same for science and mathematics, represent modes of instruction and intended learner outcomes and are shown in the side bar.

The specific items listed under the four dimensions capture the curriculum recommendations of

Percent Instructional Time for Two Physical Science Teachers



Numbers represent percent of instructional time over a school year
Because of rounding, numbers may not add up to 100%.

subject matter experts and are also familiar to teachers. An advantage of common items across the two subjects for Dimensions C and D is that subjects can be compared on the extent to which they promote active student learning.

Measuring OTL

One way to measure OTL is through teacher logs. In a recent national study on high school math and science, a daily log form asked teachers to record several indicators of OTL such as those in the sidebar: time spent on up to five topics of content, amount of time and emphasis on different modes of instruction and different student activities (including assigned homework), and the portion of class period spent on activities not directly related to the academic content of the course (e.g., announcements, attendance). A manual to guide use of the logs was provided for each teacher. Prior to using the logs, each teacher received approximately one hour of instruction in the OTL language.

The side bar to the left indicates how teachers can differ. The two teachers of physical science taught in different states. Both put heaviest emphasis upon physics and secondarily on chemistry, but Teacher 2 put somewhat less emphasis upon chemistry and instead put more emphasis upon general science. Despite these similarities, Teacher 1 used almost entirely lecture and student reading (exposition) as a mode of instruction with two-thirds of instructional time devoted to memorizing facts; while Teacher 2 spent only 50 percent of the time on lecture and student reading (exposition) and 21 percent of the time on lab work. For Teacher 2, this resulted in much less emphasis upon facts and much greater emphasis upon learning to collect and interpret data.

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The teacher logs provided information that agreed remarkably well with independent classroom observations. Completing a log requires approximately five minutes of a teacher's time each day for each course/subject described. A questionnaire survey was also used to explore a less time consuming way of collecting such data. The questionnaire asked teachers to report retrospectively on a semester of instruction, instead of each class period, using several of the dimensions in the log. Correlations between questionnaire and log data were reasonably high.

Whether through teacher logs or questionnaires, measuring OTL depends on teachers' reports of their practices. These reports have proven accurate when validated against reports of independent observers. Teachers' reports would probably continue to be valid when the data are used for professional development and school improvement. But if the information were used for coercive monitoring and high stakes accountability, this would surely compromise the integrity of teachers' reports.

Findings Across Many Schools

The study using teacher logs involved 18 high schools (grades 9 through 12) in 12 districts in six states in the 1989-90 and 1990-91 school years. In each school, approximately two mathematics and two science teachers kept logs, yielding a sample of 62 teachers.

Both mathematics and science courses were dominated by exposition, either verbal or written. In mathematics, exposition was especially high in the introductory courses, consuming two-thirds to three-fourths of instructional time. In science, exposition was less predictable by course level. In both subjects and for virtually all of the course types studied, students spent the majority of their time either being talked to by the teacher or working independently at their desks. On average for both math and science, one-third of the time was spent in seatwork, while only 25 percent of the time was spent in class discussion and small-group work.

What little lab work was done in mathematics consisted almost entirely of drill and practice at a computer terminal. In science, half of the courses spent 5 percent or less of instructional time in lab work. Neither subject involved students much in graph work, with only 1 percent of instructional time spent on graph work in science and 4 percent of instructional time for graph work in mathematics.

The picture for intended student outcomes parallels the picture for modes of instruction. In mathematics, the emphasis is on understanding and computation, while in science, the emphasis is on memorizing facts and understanding. In mathematics, only 4 percent of instructional time is given to collecting and interpreting data. Only 2 percent of instructional time is devoted to students working with novel problems. On average, no instructional time is allocated to students learning to develop proofs, not even in geometry. In science, the picture is similar. Essentially no time is allocated to students' designing experiments or building and revising theory. For one-third of the science courses studied, no time was allocated to data collection and data interpretation.

These descriptions illustrate the value of OTL indicators in monitoring progress in curriculum reform. At least for the high school mathematics and science classes studied, practice was a far cry from today's recommendations from mathematics and science educators.

An exception to this profile of low quality instruction was discovered in sections of California's Math A program. Math A was designed to serve as an intermediate step for students who might otherwise have taken ninth-grade general mathematics but might eventually take algebra. The two sections of Math A in the study stood out from all other math courses as having a distinctive dual emphasis on algebra and geometry. They also had an unusually high emphasis on mathematical modelling and an unusually low emphasis on lecture. Similarly, they placed high emphases on collecting data and solving novel problems and less emphasis on computation. These two classes may or may not represent typical practice in Math A classes, but these findings are consistent with the formal design of the course and with the curriculum reform aimed toward challenging content for all students. Implementation of the Math A syllabus was not complete, however. The 13 designated units include instruction on both probability and statistics, but neither of these was taught in either of the two Math A sections studied. Clearly, data on OTL show that implementation of Math A was highly successful in these classrooms; the data also make clear what needs to be done to make implementation even better.

Author

Andrew Porter is Professor of Educational Psychology and Director of the Wisconsin Center for Education Research, University of Wisconsin-Madison. His research on teacher decision making about curriculum content and the process of curriculum reform has led to the development of language for describing opportunity to learn in elementary school mathematics and in high school mathematics and science.

Summary and Conclusions

OTL standards may be a two-edged sword. On the one hand, they can provide a vision for specific challenging curriculum content and for effective instructional practices, based on the latest research. During this time of intense school reform, mechanisms for clarifying the goals of reform and practices leading to those goals are much needed. Since OTL indicators provide an inventory of the curriculum and instruction actually enacted, they can also describe the extent to which students of differing ethnic backgrounds have access to similar opportunities. On the other hand, OTL standards can be used as evaluative criteria, coercing teachers to adopt practices for which they may not have received sufficient preparation and that may be instructionally inappropriate in some situations.

During this time of intense school reform, mechanisms for clarifying the goals of reform and practices leading to those goals are much needed.

If OTL standards serve as a focus for collegial discussion within a professional environment, they can contribute much to school improvement. If, in contrast, OTL standards are used to control teachers from a distance without providing appropriate professional development and financial resources, they would likely alienate teachers, and, at the same time, shift attention away from student outcomes and once again to school inputs as ends in themselves.

To use OTL standards productively as vision statements and as indicators of progress toward reform, it is important to avoid making public comparisons of OTL between specifically named schools and between specific teachers within schools. When these comparisons are made, they must be made in a collegial environment where teachers and administrators have accepted responsibility for school improvement. Public comparison on OTL should be used to document general trends across large numbers of schools, courses, or groups of students, and to stimulate professional discussion and reflection within schools, detached from the sting of high stakes accountability.

For Further Reading

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Brief to policymakers is prepared by Karen Prager at the Center on Organization and Restructuring of Schools, University of Wisconsin-Madison. This publication is supported by the U.S. Department of Education, Office of Educational Research and Improvement (Grant No. R117Q00005-93), and by the Wisconsin Center for Education Research, School of Education, University of Wisconsin-Madison. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the supporting agencies. This publication is free upon request.

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NCEO POLICY DIRECTIONS

Number 2

May 1994

Students With Disabilities & Educational Standards: Recommendations for Policy & Practice

Background

Terms like excellence, higher performance, and better results have become common words in today's educational rhetoric, especially in response to reports of mediocre achievement by America's students. Congress now wants voluntary high standards and state education agencies are specifying the high standards students are to meet. These standards reflect new goals for American students, as well as for American educators.

Despite numerous descriptions, the term used most consistently in discussions of educational standards is "**all**" — the standards are for all. It is important, therefore, for those working on standards and those educating students with disabilities to work together as standards are being developed.

Since all of America's students are to have the opportunity to learn the content of high standards, including them into one framework of standards presents a challenge. A large gap exits between the areas in the educational system that set standards and that implement the opportunities for students to demonstrate their progress toward standards. Raising the performance of American students could take decades. But by setting standards, America takes its first critical step toward providing a plan that will create an excellent educational system for the 21st century.

Definitions

Standards are statements of criteria against which comparisons can be made. They often are established for the purpose of bettering an existing situation and often tend to be value statements about what is important. Standards may be exemplars or criteria used to measure the quantity or quality of something. In some cases, a standard is a threshold score that represents the level of acceptable performance on an assessment of a particular skill or in a particular domain.

Before addressing ways to include students with disabilities, it is important to understand the meaning of each of the following four kinds of standards:

- **Content**
- **Opportunity to Learn**
- **Performance**
- **Assessment**

▶ ***Content Standards***

They provide specific knowledge and skills that students should have and be able to do as a result of exposure to the curriculum in each standards-setting activity area. Knowledge includes important concepts, ideas, issues, and dilemmas in a discipline. Skills include, for

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example, thinking, analyzing, communicating, and reasoning.

- ***Performance Standards***
  They define how good is good enough. These standards are generally tied to content standards, indicating the level of competence that must be attained. They describe the nature and quality of student performance that must be demonstrated to be considered acceptable.

  Performance standards can be used at a variety of levels. For individuals, they might be used to determine the grade a student gets or what that student must demonstrate to graduate or receive a particular type of diploma. They can be used to compare the United States to other countries or to make comparisons among schools, districts, and states, to demonstrate progress toward national education goals.

- ***Opportunity-to-Learn Standards***
  Sometimes referred to as delivery standards, they define the conditions of teaching and learning that establish the basis for achieving high content and performance standards.

  Opportunity-to-learn standards are necessary complements to content and performance standards because they put some of the responsibility for outcomes on the schools and school system. Some educators believe these standards are most like the inputs and processes that have long been measured as part of educational accountability.

- ***Assessment Standards***
  These standards provide the guidelines for testing and measuring after content and performance standards are developed.

  Advocates of assessment standards argue that assessments should:
  (a) allow for both system and student level audits of performance,
  (b) measure knowledge and skills across the core disciplines as well as within them, and
  (c) measure the ability of students to apply what they know to realistic problems.

  Most assessment standards that are linked to content areas focus on equitable and non-biased assessment practices. And, most are recommending more authentic, performance-based assessments rather than multiple choice assessments. Instead of emphasizing concepts like reliability and validity, they stress authenticity, generalizability, equity, and fairness.

Issues

Difficult issues surface when educators talk about setting appropriate standards for all students. Among these are the following:

1. Educators will focus only on teaching the standards

When using the word ***standards***, it is assumed that some kind of measurement will take place and that findings will be reported. For example, standards developed by the National Council for Accreditation of Teacher Education (NCATE) have evolved into an extensive compliance and monitoring system. These standards determine accreditation for teacher education programs. Because NCATE accreditation is necessary to validate a program, much time and effort is spent preparing to meet these standards.

In national standards-setting efforts, most educators want to know which standards apply to them and how they will be measured. Standards-setting efforts that are likely to have high impact are those that the federal government has sponsored. Most often sponsorship comes through the Office of Educational Research and Improvement, with major government advisory groups like the National Education Goals Panel being involved in shaping standards certifications. When the government underwrites standards, issues of fairness (ranging from opportunity-to-learn to the use of appropriate comparison groups when assessing progress toward standards), acceptability, and consequences (both rewards and sanctions) seem to acquire more importance.

2. Consensus cannot be reached on what the standards should be

Although most sets of standards go through many rounds of consensus building and feedback from content area specialists and the community, there will be some disagreement with the final format, content, and principles. For example, take the mathematics standards. They tend to have a constructivist and discovery-learning orientation because the emphasis is on higher-order thinking skills, problem-solving, and using mathematics in connected and meaningful ways. Researchers question the appropriateness of this method of teaching for students with disabilities because they believe they have demonstrated that these students require direct approaches to learn basic skills before they can participate meaningfully in more open-ended inquiry.

3. It is unfair to hold everyone to the same standards because some students start way ahead of others

Every student begins from a different point relative to the standards. To expect that they will meet the same standards at once is unrealistic. However, educators remain concerned about the consequences (the "stakes") attached to the measurement of standards. If standards measure student progress for the purpose of school district comparisons or funding decisions, then the standards would be considered "low stakes" for the student, but "high stakes" for the school districts. Attaching consequences when measuring progress or lack of progress toward standards is already a part of the accountability system in some states.

Setting Standards for Standards

Each standards activity needs to have its own set of standards. A technical planning group for the National Education Goals Panel proposed the following list of criteria for content standards:

1. **World class**
2. **Important and focused**
3. **Useful**
4. **Reflects broad consensus building**
5. **Balanced**
6. **Accurate and sound**
7. **Clear and usable**
8. **Assessable**
9. **Adaptable**
10. **Developmentally appropriate**

This list indicates what the planning group will look for in standards that are developed by states applying for funds to support education reform through the Goals 2000 Educate America Act. The group also suggests that states submit a core set of content standards that apply to all students. These standards would be judged on the extent to which they are:

- As rigorous as the national subject-specific standards, and when different, held up to the same review criteria
- Feasible, delimited, and focused so that they can be implemented in the schools
- Cumulatively adequate to give all students the knowledge, skills, and habits needed to succeed in work and to further their own learning
- Encouraging students to integrate and apply knowledge and skills from various subjects
- Reflective of a state consensus-building process that shows what educators and the public within the state are interested in having all students know and be able to do.

These criteria are for content standards only. Much work remains to be done to set criteria for performance standards.

Approaches to Standards

Most of the disciplines setting standards have used inclusive language, indicating that their standards are intended for all students. Yet, few certainties exist about how later phases of the standards-related reform will include students with disabilities. Following are three alternative perspectives on doing this:

▶ ***IEP-Based Standards***
The Individualized Education Program (IEP) can be the basis for student standards. It now serves as the cornerstone for ***process*** accountability by keeping track of numbers of students, placements, and so on. But, it could be used as a vehicle for ***outcomes*** accountability by capitalizing on some of its components. For example, the goals and objectives might be translated into relevant outcomes that match those of the school district or state. The assessment/evaluation component may help define acceptable performance.

Merits	Limitations
They capitalize on the familiarity of the document. They eliminate another layer of paperwork. By using the concept of "personal best," they correspond with the individualization sought for students on IEPs. IEP procedures require input from parents and students, a procedural component that increases the possibility of realistic goals and expectations. IEPs are already the basis for reporting to state and federal governments.	Because the quality of IEPs is highly variable, adding to or changing the format might further increase the variability. Low standards might be set for students, with the rationalization that they should not experience failure. Monitoring IEPs would become even more difficult for monitors, and probably would require new skills and criteria. Aggregating data may be problematic because of IEP individualization; common standards may not be possible.

Merits and Limitations for IEP-Based Standards

Developing IEP-based standards has both merits and limitations (see above).

▶ ***Standards for Group Gains***
A system can be set up similar to that used by the Environmental Protection Agency (EPA) for evaluating fuel efficiency within the automobile industry. The EPA required car manufacturers to improve the fuel efficiency of every class of car. Not all cars have been made more efficient to the same degree, but, the average performance across the industry was improved. Within education, a system-wide, average standard could be set and improvement for all student groups would be required.

Using a system focused on group gains has both merits and limitations (see below).

Merits	Limitations
All quartiles of students are targeted for improvement, along with the overall system. No one group of students would be targeted for	There is no guarantee that each student will show a gain. It will be difficult to develop meaningful assessments of progress for the full range of students in schools.

Merits and Limitations for Standards for Group Gains

▶ ***Separate Standards***
A separate system of standards can be created for the students in special education programs. A state that uses a high school graduation exam might establish a different set of high standards for students with disabilities in order to improve the instructional validity of the high school testing program. However, if this approach were carried out for the different categories of disability, there would be more sets of standards than could be handled. For example, 13 categories x 12 content areas in which standards are now being set = 156 sets of standards.

The use of a system with separate standards has both merits and limitations (see page five).

Merits	Limitations
They would be better aligned to students' particular needs. They might help identify a realistic set of goals or competencies. They could be organized around concepts such as communication, functional literacy, and job/employability skills rather than content areas.	Expectations may be lowered for students with disabilities. Separate standards might legitimize using a less rigorous approach with students with disabilities. They might promote the development of category-specific standards. They could narrow curricular choices. Educators will have a more difficult time making comparisons in progress with the general population of students. They might inhibit achievement and lower the self esteem of students with disabilities.

Merits and Limitations for IEP-Based Standards

Recommendations for Policy & Practice

No easy answers exist. Yet, it is possible to make some recommendations for both content standards and performance standards.

Content Standards

Recommendations for content standards are:

- **Identify one set of standards**
- **Individualize the standards for students receiving special education services**
- **Specify the depth and breadth of instruction for each standard**
- **Require parent/guardian approval.**

There should be one set of content standards — there is no need to identify special education standards. What is important for some students to know is important for all students to know. The content standards of the skills and knowledge required for a trained and informed work force are useful for students at all ability levels.

When content standards are translated into curricular and instructional programs for students, educators are able to prepare individualized standards for students receiving special education services. Some students will need different experiences, levels of service, and instructional accommodations to meet the content standards.

The IEP can serve as a focal point to specify the appropriate depth and breadth of instruction needed for a particular content standard. But, the preferred practice is to move all students to the highest level of content standards by varying the instructional accommodations.

If the IEP team agrees that the highest level of the content standards is not feasible for a particular student, it may decide to address only part or certain levels of a standard. In this way, curricular choices align with the original content standards and only the depth and breadth of instruction changes. The student's IEP must reflect these decisions specifically with support in writing, and agreement from the parents or guardian of the pupil to avoid categorically-based decisions about which standards are appropriate.

▶ ***Performance Standards***

Several recommendations for performance standards are:

- **All students must be assessed for progress in performance within content standards**
- **Accommodations should be used during assessment**
- **If individual student performance is of high stakes to the student (for example, receiving graduation diploma) then a supplement to the document should be used.**

Performance levels need to be defined so that all students can be assessed for progress toward the content standards for which they will be held accountable. ▲

NCEO Policy Directions are a series of reports that address national policy issues related to students with disabilities. This report was prepared by Jim Ysseldyke, Martha Thurlow, and Jim Shriner with input from many individuals.

Additional copies may be ordered for $3.50. Please write:

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About NCEO

The National Center on Educational Outcomes (NCEO), established in 1990, works with state departments of education, national policy-making groups, and others to facilitate and enrich the development and use of indicators of educational outcomes for students with disabilities. It is believed that responsible use of such indicators will enable students with disabilities to achieve better results from their educational experiences.

The Center represents a collaborative effort of the University of Minnesota, the National Association of State Directors of Special Education, and St. Cloud State University.

The Center is supported through a Cooperative Agreement with the U.S. Department of Education, Office of Special Education Programs (H159C00004). Opinions or points of view do not necessarily represent those of the U.S. Department of Education or Offices within it.

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GOALS 2000 and Skill Standards

A significant feature of GOALS 2000: Educate America Act is the establishment of a National Skill Standards Board. Its mandate is to "serve as a catalyst in stimulating the development and adoption of a voluntary national system of skill standards and of assessment and certification of attainment of skill standards." (Sec. 502) The focus of this ambitious enterprise is to prepare Americans for the complicated educational and workforce demands of the 21st century, and in particular to assure that America has "the most skilled frontline workforce in the world." Success in achieving this goal will require determined -- and innovative -- efforts from every sector of our educational and occupational communities. High academic content standards and high occupational skill standards must go "hand-in-hand" in reshaping our curricula and school reform efforts. And these efforts must be firmly rooted in the experience and active participation of employers, labor organizations, schools, institutions of higher education, and members of every community across America. GOALS 2000 contains two major components -- a system for helping states and localities establish high, voluntary academic standards, and a system for helping business, labor, educators, and the public create high, voluntary occupational skill standards. The two are inextricably linked. Together, these systems will restructure America's educational system and produce workers and life-long learners whose capacities to address demanding academic and workforce challenges will be unquestioned. Three basic principles are at the heart of the skill standards enterprise:

- The standards are, and must be, voluntary. Every State can choose whether to participate. The National Skill Standards Board will assess and certify the efforts of the various States that choose to seek the Board's public warranty.
- The standards are industry-led, with the active participation of business, labor, educators, workers, and community leaders and members.
- The development of skill standards must integrate, not duplicate, work already carried out by industry, states, labor, and the education and training communities.

That is why the GOALS 2000: Educate America Act establishes a National Skill Standards Board whose purpose is to encourage partnerships in developing and adopting standards that are relevant to industry—the job-producing engine of our society. The partners—developed along industry or occupational lines and including broad-based representation from business, labor, and education—will themselves actually develop the standards. The National Board's function is to endorse the standards that meet widely acknowledged, and challenging criteria. These standards will be linked to the highest international skill standards and to the requirements of high-performance work organizations. In this way, the United States will be able to set goals for skill achievement, high academic content, work competencies, and job performance that will create a life-long learning system for all Americans.

Source: The U.S. Department of Education and
the U.S. Department of Labor, 1994.

As part of the commitment to establish a voluntary national system of integrated high academic and occupational skill standards, the U.S. Departments of Education and Labor have initiated a public-private partnership to develop voluntary occupational skill standards for various significant industries. In 1992 and 1993, the Departments funded 22 pilot projects—16 Education, 6 Labor—to develop voluntary occupational skill standards covering some 19 major industrial areas. The industry-based skill standards to be developed over a three-year period must, at a minimum, be compatible with world-class levels of industry performance. They must also be tied to measurable, performance-based outcomes that be readily assessed, comparable across industries, similar occupations, and states. Additionally, the standards must be free from gender, age, racial, or any other form of bias or discriminatory practice.

As States set about the work of designing and implementing their own GOALS 2000 plans for school reform, they may wish to consider the experience of these occupational skill standards projects. Accordingly, here are brief summaries of the work being done across the country, and contact persons from whom more detailed information and assistance is available.

Advanced High-Performance Manufacturing

The Foundation for Industrial Modernization (FIM) has established a coalition of business, education, and labor representatives who are developing national, voluntary skill standards for technical workers in advanced high-performance manufacturing. The standards will comprise the core competencies and technical skills that many industrial workers will need to perform 21st century jobs effectively. Advanced manufacturing implies the use of computer-based and other high-precision manufacturing technologies integrated into a production process that turns "mass production" into a system capable of furnishing a heterogenous mix of products in large or small volumes with the efficiency of large-scale production practices and the responsiveness of custom manufacturing. Particular focus is given to basic science, applied mathematics, problem solving and logic, communication skills, and related academic and workplace knowledge.

Contact: C.J. Shroll, Project Director, FIM, 1331
Pennsylvania, N.W. Suite 1081, Washington DC 20004-1703.
(202) 662 8965. FAX 202 637 3182.

Agricultural Biotechnology

The National Future Farmers of America (FFA) is organizing and will operate a business, labor, and education technical committee that will propose national standards for competencies for entry-level laboratory technicians working in agricultural biotechnology. Particular focus will be given to animal care technicians, greenhouse and field technicians, quality control and assurance technicians, and equipment preparation technicians.

Contact: Bernard Staller, National FFA, P.O. 15160
Alexandria VA 22309. (703) 360 3600 FAX (703) 360 5524.

Air-Conditioning, Heating, and Refrigeration

The Vocational-Technical Education Consortium of States (V-TECS) is working with a coalition of manufacturers, trade and professional associations, labor organizations, and education organizations to propose national skill standards for the heating, air-conditioning, and refrigeration occupations. The project will identify the skill requirements of workers who install, maintain, repair, and operate these pieces of equipment in both residential, light commercial, commercial, and industrial structures and settings. Special focus is being given to the integration of technical skills, academic concepts, and workplace behaviors.

Contact: Victor Harville, V-TECS, Southern Association of
Colleges and Schools, 1866 Southern Lane, Decatur GA 30033.
(800) 248 7701. FAX (404) 679 4556.

Automobile, Autobody, Truck Technician

The National Automotive Technicians Education Foundation (NATEF) reviews and updates a Technician Certification Program for the National Institute for Automotive Service Excellence (ASE). Applied academic and employability skills required of automotive technicians represent the governing feature of this project. An unduplicated list of academic skills will be produced in addition to suggested skill entrance level criteria.

Contact: Patricia Lundquist, Ph.D. NATEF, 13505 Dulles
Technology Drive, Herndon VA 22071. (703) 713 0100.
FAX (703) 793 6544.

Bioscience

The Education Development Center (EDC) is directing a business, labor, and education consortium to develop national, voluntary skill standards for entry-level and mid-level technical specialists. These industry-based standards will be bench-marked for improving school and work-based education and training systems for young people and retrained workers seeking to qualify themselves for entry or career advancement in the bioscience industry. This industry consists of laboratory-based occupations in clinical, pharmaceutical and biotechnology companies. Both research and development, clinical and diagnostic work, and manufacturing skills are characteristic of bioscientific worker expectations. This project, in particular, emphasizes skill standards that exceed narrowly defined traditional occupations, and (in keeping with the success of the German apprenticeship system) a combination of occupations that share a common core of required general and industry-based technical skills, knowledge, and workforce expectations.

Contact: Judith Leff, Project Director, EDC 55 Chapel
Street, Newton MA 02160. (617) 969 7100. FAX (617)
332 4318.

Chemical Process Industries

The American Chemical Society (ACS) will coordinate a collaborative, industry-centered effort to develop industry standards that describe the appropriate competencies for new-hire chemistry-based laboratory technicians and technical operations personnel for the broadly defined Chemical Process Industry (CPI). Among the occupational skill areas which receive particular attention are: chemical and petroleum process operations, materials separations and production, private and academic research and development companies, and chemistry-based monitoring operations.

Contact: Ken Chapman, ACS, 1155 16th Street, N.W.
Washington DC 20036. (202) 872 8734. FAX (202) 872 8068.

Computer-Aided Drafting and Design

The Foundation for Industrial Modernization (FIM) has established a coalition of business, education and labor representatives who have developed national skill standards for CADD users across all CADD disciplines. Mechanical, electrical, electronic, mapping, architectural, and engineering occupational skill areas are among the CADD disciplines.

Contact: Jane Beardsworth, FIM, 1331 Pennsylvania Ave. N.W.
Suite 1410 North Tower, Washington DC 20004.
(202) 637 3436. FAX (202) 637 3182.

Electrical Construction

The National Electrical Contractors Association (NECA) is developing a single set of national electrical construction worker standards that will reflect both the current skill apprenticeship system, and the guiding principles established under the new national skill standards framework. With approximately 50,000 firms employing over 500,000 workers, and an economic impact of $90 billion annually, the electrical contractors industry has particular interest in anticipating rising international competitive markets. The project emphasizes training and understanding, for each worker, of entire systems rather than partial training in limited disciplines. Standards will be developed for entry, progression, and functional craft level employment.

Contact: Charles Kelly, Director of Labor-Management
Services, NECA, 3 Bethesda Metro Center, Suite 1100,
Bethesda MD 20814. (301) 657 3310. FAX (301) 215 4500.

Electronics

The Electronic Industries Foundation (EIF) in conjunction with the Electronic Industries Association (EIA) will organize and oversee a business-labor-education partnership that will develop and validate national skill standards for entry-level work-ready electronics technicians. Among the occupational clusters at issue are general electronics, avionics, business machine service, consumer products, biomedicine, microcomputer systems and service, instrumentation, telecommunications and automotive service. Over 100 partner companies, educational institutions, and agencies are involved in this project.

Contact: Irwin Kaplan, EIF, 919 18th Street, N.W.
Washington DC 20006. (202) 955 5817. FAX (202) 955 5837.

Electronics (DOL)

The American Electronics Association (AEA) is developing voluntary skill standards for key jobs throughout the high-tech industry. The goal of the project is to develop an industry-wide consensus on necessary worker skills. Three occupational areas will receive primary attention: manufacturing specialist, pre/post sales analyst, and administrative/information support personnel. These classifications do not exist in the industry as discreet job occupations, but rather they encompass broad clusters of occupations based on industry-wide functional analysis.

Contact: Cheryl Fields Tyler, Director of Workforce
Excellence, AEA, 5201 Great American Parkway, Box 54990,
Santa Clara CA 95056. (408) 987 4267. FAX (408) 970 8565.

Food Merchandising

The Center for Human Resources and Career Development of the National Grocers Association (NGA) will organize and operate business, labor, and education technical committees that will develop national core competencies, performance standards, and a certification process for the grocery industry. Attention will be given both to national self-distributing and non-self distributing chain stores, and to independently owned and operated single wholesale companies who are the primary suppliers of the non-distributing independent and chain group stores. Standards will address job-specific, academic and reasoning skills along with a certification process for professional development of workers. Special attention will be given to the development and improvement of curricula in vocational-technical education and training programs.

Contact: Jim Williams, V.P. and Executive Director of the
Grocers Research and Education Foundation, 1825 Samuel Morse
Drive, Reston VA 22090. (703) 437 5300. FAX (703) 437 7768.

Hazardous Materials Management

The Center for Occupational Research and Development (CORD) will organize and coordinate a coalition of business, industry, professional societies, and technical colleges to determine and validate the tasks, skills, and level of ability that employees must possess to be successful entry-level practitioners in the hazardous materials management technology field. This field is a specialized occupation within the more general category of Environmental Science. CORD proposes in particular to investigate the skills needed by industry when remediation of contaminated sites is of primary importance; in addition, curricula and skill standards regarding pollution control and reduction will be emphasized.

> Contact: Jim Johnson, Project Director, CORD, 601 Lake Air Drive, Waco TX 76710. (817) 772 8756. FAX (817) 772 8972.

Health Care

The National Health Standards Project represents a collaborative effort by health care representatives from industry, education, labor, and professional associations to develop national skill standards for the health care industry. The project emphasizes a collaborative, multi-stage model for the development, review, and evaluation of standards and support materials, including prototype assessment tasks; the development of a national data-base of such standards; and a plan for maintenance of the standards that will be developed. Particular occupational skill clusters include: therapeutic services, diagnostic services, information systems services, and support services. Attention is also being given to the development of a core curriculum for all health care workers.

> Contact: Dr. Sri Ananda, Director, Assessment Service Program, Far West Laboratory for Educational Research and Development (FWL), 730 Harrison Street, San Francisco CA 94107-1242. (415) 241 2725. FAX (415) 241 2702.

Heavy Highway and Environmental Remediation

The Laborers AGC Education and Training Fund will organize and operate two coalitions formed from business, labor, and education experts. Their purpose is to identify skills, develop world-class standards and develop and promote certification programs. Proficiency examinations, automated record-keeping, dissemination of the standards-setting process and resulting certification are among the topics of the project. Construction projects include dams, airports, roads and highways, tunnels, and other major infrastructure facilities.

> Contact: James Warren, Laborers-AGC Education and Training Fund, Box 37, 37 Deerfield Road, Pomfret Center CT 06259. (203) 974 0800. FAX (203) 974 1459.

Hospitality and Tourism

The Council of Hotel, Restaurant and Institutional Education (CHRIE), in conjunction with the National Skill Standards Project for the Hospital and Tourism Industry, is developing and building consensus around a voluntary system of skills standards for their industries, including food, lodging, travel-related, and recreational services. Standards are being developed for front-line positions in the lodging and food services industries. At present, these are important employment areas which lack formal training programs and certification procedures.

Contact: Doug Adair, Project Director,
CHRIE, 1200 17th Street N.W. Washington DC 20036.
(202) 331 5990. FAX (202) 785 2511.

Human Services

The Human Services Research Institute (HSRI) will organize and manage a technical committee representing the human services industry, government, labor, and education. This committee will propose national standards for competencies for entry-level direct care community support workers in the human services industry. These employment areas include consumer and family advocacy groups, case management services, residential support services, social welfare agencies, and others. Particular attention in these service fields to individuals with distinctive physical, cognitive, emotional, social and economic needs.

Contact: Valerie Bradley, HSRI, 2335 Massachusetts Ave.
Cambridge MA 02140. (617) 876 0426. FAX (617) 492 7401.

Industrial Laundry

The Uniform and Industrial Textile Service Association (UTSA) has organized an industry-labor-education government coalition that is developing industry skill standards and certification programs for the textile care industry. Skill standards are evolving from job/task analysis, relying heavily on worker input. A two-level certification process will use a portfolio approach at each level. Certification is intended to reflect the diversity of required skills in this cross-training industry.

Contact: Geoffrey Northey, Director of Training and
Development, UTSA, 1730 M Street, N.W. Suite 610,
Washington DC 20036. (202) 296 6744. FAX (202) 296 2309.

Metalworking

The National Tooling and Machining Association (NTMA), in cooperation with the Council of Great Lakes Governors (CGLG) is carrying forward a four year work plan to establish a national skill standards system for all major skilled occupations in the metalworking industry not requiring a baccalaureate degree for entry-level employment. An industry-led consortium of technical experts will identify standards, curriculum and training guidelines, and an assessment system. A Metalworking Industry Skill Standards Board will coordinate that work. Additionally, a state-led effort will implement the standards into education and workforce development programs and quality assurance systems, and establish an integrated credential system.

Contact: William Ruxton, V.P. NTMA,
9300 Livingston Road, Fort Washington MD 20744.
(301) 248 6200. FAX (301) 248 7104.

Photonics

The Center for Occupational Research and Development (CORD) will develop standards for the varied applications of photonics technology. This industry is essentially light-based technology, and particular attention will be given to information superhighway systems utilizing skill tasks in fiber optics, censoring technologies, mapping, and monitoring skills. CORD has identified nine different occupational areas of specialization for which national, voluntary skill standards should be established.

Contact: Darrell Hull, Photonics Project Director, CORD,
601 Lake Air Drive, Waco TX 76710.
(817) 772 8756. FAX (817) 772 8972.

Printing

The Graphic Arts Technical Foundation (GATF) has convened a project Policy Committee composed of representatives from business, labor, education, and professional associations who will develop and validate competencies and standards for jobs in the three major occupational clusters within the industry: prepress, press, and postpress. These clusters operate in commercial printing, book printing and binding, and packaging. Standards will be developed for both entry and expert levels within these trades, including high technology computer imaging specialists.

Contact: John Burgess, GATF, 4615 Forbes Avenue,
Pittsburgh, PA 15213.
(412) 621 6941. FAX (412) 621 3094.

Retail Trade

The National Retail Federation (NRF), by developing skill standards for the retail sales associate, intends to promote high performance work organization in the industry's fastest growing sector. Particular attention will be given to foundation skills, certification procedures, and marketing strategies within the industry itself to give greater credibility to the need for such standards. A School to Work model curriculum will also be developed incorporating the standards.

Contact: Robert Hall, V.P. Government Affairs Counsel,
NRF, 701 Pennsylvania Ave. N.W., Suite 710,
Washington DC 20004.
(202) 783 7971. FAX (202) 737 2849.

Welding

The American Welding Society (AWS) will organize and operate a business-labor-education technical committee to develop and propose a national skill standard and accompanying school and training curriculum to certify workers in this industry. These standards will apply to welding skills regardless of specific industry or geographical area of employment.

Contact: Nelson Wall, AWS, 550 N.W.,
LeJeune Road, Miami, FL 33126.
(305) 443 9353. FAX 443 7559.

Student Assessment

Content Standards and Assessment

Despite the many efforts under way to set new standards, most students in this country are still taught unchallenging curriculum and are still not aware of what they should be aiming at in their education.

—*The National Education Goals Panel*

At its heart, Goals 2000 is about improving achievement for all students. The underlying strategy is to establish conditions for students, teachers, administrators, the community, and others to do a better job of equipping students with the knowledge, skills, and habits of mind that will serve them well both in school and outside. The message is not just "try harder," although special efforts are called for, but "let's work together" by taking advantage of some remarkable developments in education and in the public's will to reform education.

For the first time in our history, education leaders and the general public agree that all students—not just an elite—need high academic standards, rich and challenging curricula, imaginative teaching, and tests that probe their abilities to solve problems. For the first time, too, people understand that education cannot be reformed piecemeal. For instance, just changing the curriculum in one subject won't generally improve learning in all subjects, nor will progress likely be significant in that subject if tests remain the same, teachers teach in the same way, and students' expectations remain the same.

Major improvements are needed in what takes place in our classrooms, how our schools are organized, what type of preparation and professional development our teachers receive, how parents become involved with the schools and with their children's education, and, most importantly, what we expect from the students in our schools. All of these improvements and reforms need to be able to reinforce one another, because the whole truly is larger than the sum of its parts. Some call this systemic reform.

For this entire undertaking, a great deal of flexibility is needed at the local level, so that changes can be made in schools in a manner consistent with local resources, priorities, and conditions.

What are content standards and assessments?

Content standards specify the knowledge and skills essential to a discipline, such as mathematics, that students are expected to learn. The knowledge includes the most important and enduring ideas, concepts, issues, dilemmas, and information of the discipline. The skills include the ways of thinking, working, communicating, reasoning, and investigating that characterize that discipline. Taken together, this knowledge and these skills are what distinguish experts, as well as students who have obtained a high level of proficiency, from novices and others who have not had an opportunity to learn. Performance standards specify the level of achievement students will be expected to demonstrate.

Children and youth alike respond to the expectations we hold for them. One of the most important conditions for improving achievement, therefore, is to tell students in the clearest language possible what

This paper is offered to stimulate discussion and thinking in one of the key components to be included in Goals 2000: Educate America Act plans. We welcome revisions and suggestions for examples of effective state and local practices for future editions. Please send your comments to: Goals 2000; U.S. Department of Education; 400 Maryland Avenue, SW; Washington, DC 20202.

it is we want them to learn. Spelling out high expectations through a reasoned, communitywide process is what standard-setting is all about. We also need to set our sights high. We know from numerous research studies that students who are in schools with high expectations and challenging curricula learn more than students in undemanding, low-level educational programs.

The purpose of raising expectations and standards is not to create higher hurdles that fewer students will be able to jump, but to give all students the opportunity to learn subject matter that is useful, interesting, and challenging. The children who suffer most from low expectations are those in minimal programs; many of these children are from racial-ethnic minority groups, have limited proficiency in English, have disabilities, or come from economically disadvantaged backgrounds. But even students who are especially talented or have a particular interest in a subject often remain inadequately challenged.

The movement to develop voluntary content standards has already begun. The National Council of Teachers of Mathematics (NCTM) has prepared mathematics standards, and the U.S. Department of Education is currently funding the creation of voluntary content standards in the arts, civics and government, foreign languages, geography, history, and science. Although the Department's original grant supporting standards development in the English language arts was canceled, the effort will be continued under a new award. A draft of the standards in the arts has recently been released for review.

The national content standards will be voluntary, not mandatory. They will succeed only to the extent that they are accepted by teachers, administrators, parents, and the public. No federal mandate will impose the new standards. States may use these standards as models in developing their own content and performance standards, or they may pursue their own course in developing their standards. Some communities may want to exceed the State standards.

Why are content standards and assessment strategies important in the plan?

The math standards developed by NCTM broke new ground by drawing attention to mathematical habits of mind—reasoning, communicating, and investigating problems—that all students can learn. Research has shown that, contrary to a persistent myth, learning problem solving in mathematics does not have to wait until students have mastered computational skills. Even though there was no more truth to it than the notion that children have to master vocabulary before they can be taught to read or write a sentence, this myth had helped keep generations of children mired in dull, repetitive computational drill and practice.

Standards are not curriculum, however. Standards are concerned with student performance. They tell us what students should know and be able to do, but not how our children are to reach those standards.

The "hows"—which books will be read, what individual or group projects will be assigned, what courses will be offered and in what sequence, and what requirements must be fulfilled for graduation—are separate matters, not specified by standards. These matters will not be addressed in any national standards. They are left entirely to States and communities, which may, in turn, leave many decisions to individual districts, schools, and teachers.

Some of the highlights of State improvement plans under Goals 2000 are:

- "a process for developing or adopting State content and State student performance standards for all students;"
- "a process for developing and implementing valid, nondiscriminatory, and reliable State assessments;"

  (These State assessments are to be aligned with the State's content standards; support effective curriculum and instruction; provide for the participation of all students with diverse learning needs along with needed adaptations and accommodations; involve multiple measures of student performance and meet assessment standards; and provide coherent information about student attainment relative to the State's content standards, so that States can monitor the impact of the assessment on improved instruction for all students.)

- "a process for aligning State and local curricula, instructional materials, and State assessments with State content standards and State student performance standards;" and

- "a process for familiarizing teachers with the State content standards and State student performance standards and developing the capability of teachers to provide high quality instruction."

As standards provide targets for performance, tests and assessments provide information to help maintain and focus our efforts. Revised (or new) standards and curricula require new assessments. The old tests that emphasized low-level knowledge and skills are simply not adequate for curricula that place students at the center of their own learning and emphasize such skills as investigating topics, communicating ideas, and solving problems that have not been pre-structured by test makers. These types of skills are being called for more and more by employers and colleges, so today's K-12 students must begin to acquire them now.

States and local school districts will have to develop (or revise) their own assessments to address their own standards and curricula and their own information needs. Some of the new assessments (often called performance, alternative, or authentic assessments) are as follows:

- **Open-ended or extended-response exercises** are questions or other prompts that require students to respond orally or in writing. Students might be asked to describe what happens in a science experiment or what arguments a historical personage would make to a particular proposition (e.g., Lincoln's views on what led to the Civil War).
- **Extended tasks** are assignments that are carried out over several hours or longer. Such tasks could include drafting, reviewing, and revising a poem; conducting and explaining the results of a science experiment on photosynthesis; or even painting a car in auto shop.
- **Portfolios** are selected collections of student work representing an array of performance. A portfolio might contain a student's "best pieces" and the student's evaluation of the strengths and weaknesses of the pieces. The portfolio might also contain some "works in progress" that illustrate improvements over time.

Unlike traditional multiple-choice tests, the new assessments are highly diverse and require comprehensive responses to challenging standards. The main feature that performance assessments have in common is that students are asked to perform real-life tasks rather than just select an answer from a list of possible choices. Performance assessments can also be more closely linked to local curricula and classroom instruction.

What are some examples of successful strategies and programs?

- *The College Board* has begun an initiative called Pacesetter to advance educational excellence for all students. Launched in the fall of 1991 by high school and college-level educators, Pacesetter will provide secondary-school course frameworks and related assessments in five subject areas, as well as professional development opportunities for teachers. The mathematics offering is being pilot-tested at 10 sites in 1993-94, followed by offerings in English, world history, science, and Spanish.
- *The National Center for Educational Outcomes* at the University of Minnesota provides nationwide leadership in the development of a comprehensive system of educational outcome indicators for students with disabilities. The Center also gathers, analyzes, and disseminates information on State approaches to indicator identification and outcomes assessment.
- *The National Center for Research on Evaluation, Standards, and Student Testing* (CRESST) at UCLA is carrying out several collaborative research projects involving portfolios in elementary schools. One project involves analyzing issues and problems teachers encounter when using a scoring rubric originally developed for writing assessments to score writing collections in student portfolios. In another project, researchers are documenting the effects of mathematics portfolios on instructional methods and students' learning and motivation.
- *The New Standards Project* at the University of Pittsburgh and the National Center for Education and the Economy is developing a new assessment system to support world-class standards of performance for all students. The system employs advanced forms of performance assessment, such as portfolios, exhibitions, projects, and timed performance examinations. Among

the partners in the project are: Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Iowa, Kentucky, Maine, Massachusetts, Missouri, New York, Oregon, Pennsylvania, South Carolina, Texas, Vermont, Virginia, Washington, and a number of large school districts.

Many of these and a few other States have been at the forefront of systemic reform, and have provided us with a number of ideas and processes that are important in standard-setting and assessment. Their contributions include: innovative approaches to obtain broad, community-based participation in reform planning; examples of demanding curriculum frameworks in several subject matter areas; innovative assessments and systems of assessments; portfolios; techniques for aligning assessments with content and performance standards; techniques for aligning assessments with curriculum frameworks; and examples of teacher involvement in administering assessments and in rating student performance with uniform rating criteria. This body of information and experience reveals not a single, "cookie-cutter" approach to school reform. Rather, it provides an array of options, choices, and opportunities for States either to build on the work of others or to set a new course of their own.

- *Kentucky's accountability system*, known as KIRIS, provides a clear example of how students with disabilities can be included in standard setting and assessment. All students (with or without disabilities) are assessed as part of KIRIS, but may participate in different ways depending on the severity of their disabilities. Some participate just as others do, some participate with modifications and adaptations consistent with their IEPs, and some participate in an alternative form of only one of the assessment components. All students' scores are included in the data reported for schools. School data can be disaggregated for students with disabilities by disability category. Regarding opportunity to learn, physical and mental barriers to learning are not in the KIRIS accountability indices, but this decision is currently being reviewed.

- *PROPEL* is a continuation of *ARTS PROPEL*, a cooperative research project of the Pittsburgh Public Schools, Harvard Project Zero, and Educational Testing Service (ETS). In both stages of the project, portfolios have been used, along with classroom observations and external assessments, to assess learning in three content areas: imaginative writing, music, and the visual arts. Information on the PROPEL/ARTS PROPEL approach is now available from ETS in four handbooks: a general overview handbook and one for each of the three content areas. The handbooks describe program and teacher strategies and illustrate student production, perception, and reflection in projects that extend over time.

- *Portfolio News* is a quarterly publication with 20 to 30 pages of articles, project briefs, and other materials by teachers, project directors, and researchers about successful local and State portfolio projects.

- The U.S. Department of Education is currently funding professional groups to work on content standards in mathematics, science, history, arts, civics and government, geography, and foreign languages. These projects are described in *High Standards for All Students.*

Where can I get more information?

American Council on the Teaching
of Foreign Languages
Foreign Language Standards Project
6 Executive Plaza
Yonkers, NY 10701-6801

ARTS PROPEL
Educational Testing Service
18-R
Princeton, NJ 08541
(609) 921-9000

Coalition of Essential Schools
Brown University
Box 1969
Providence, RI 02912
(401) 863-3384

Center for Civics Education
Civics and Government Standards
5146 Douglas Fir Road
Calabasas, CA 91302-1467

College Board
45 Columbus Avenue
New York, NY 10023
(212) 713-8087

Council of Chief State School Officers
1 Massachusetts Avenue NW
Suite 700
Washington, DC 20001-1431
(202) 336-7045

Music Educators National Conference
Arts Standards Project
1806 Robert Fulton Drive
Reston, VA 22091

National Academy of Sciences
National Research Council
Science Standards Project
2101 Constitution Avenue NW
Washington, DC 20418
(202) 334-2000

National Center for Educational Outcomes
University of Minnesota
111 Pattee Hall
150 Pillsbury Drive SE
Minnesota, MN 55455
(612) 626-1530

National Center for History in the Schools
History Standards Project
UCLA
231 Moore Hall
405 Hilgard Avenue
Los Angeles, CA 90024

National Center for Research
in Mathematical Sciences Education
University of Wisconsin—Madison
Madison, WI 53706
(608) 263-3605

National Center for Research on Evaluation,
Standards, and Student Testing
(CRESST)/UCLA
145 Moore Hall
405 Hilgard Avenue
Los Angeles, CA 90024-1522
(310) 206-1532

National Council of Geographic Education
Geography Standards Project
1600 M Street NW
Washington, DC 20036

National Council of Teachers of Mathematics
(NCTM)
1906 Association Drive
Reston, VA 22091
(703) 620-9840

New Standards Project
Learning, Research and Development Center
University of Pittsburgh
3939 O'Hara Street, Room 408
Pittsburgh, PA 15260
(412) 624-8319

Portfolio News
Portfolio Assessment Clearinghouse
San Dieguito Union High School District
710 Encinitas Boulevard
Encinitas, CA 92024

Reading List

California State Department of Education. (1989). *A Question of Thinking: A First Look at Students' Performance on Open-ended Questions in Mathematics.* Sacramento, CA: Author.

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National Council on Education Standards and Testing. (1992). *Raising Standards for American Education.* Washington DC: U.S. Government Printing Office.

Office of Technology Assessment. (1992). *Testing in American Schools: Asking the Right Question.* Washington DC: U.S. Government Printing Office.

U.S. Department of Education. (1994). *Secretary's Conference on Mathematics and Science Assessment—Proceedings.* Washington DC: U.S. Government Printing Office.

U.S. Department of Education. (1993). *High Standards for All Students.* Washington DC: U.S. Government Printing Office.

OFFICE of RESEARCH

Education Consumer Guide

Number 2

September 1993

Performance Assessment

What is it? Performance assessment, also known as alternative or authentic assessment, is a form of testing that requires students to perform a task rather than select an answer from a ready-made list. For example, a student may be asked to explain historical events, generate scientific hypotheses, solve math problems, converse in a foreign language, or conduct research on an assigned topic. Experienced raters—either teachers or other trained staff—then judge the quality of the student's work based on an agreed-upon set of criteria. This new form of assessment is most widely used to directly assess writing ability based on text produced by students under test instructions.

How does it work? Following are some methods that have been used successfully to assess performance:

- **Open-ended or extended response exercises** are questions or other prompts that require students to explore a topic orally or in writing. Students might be asked to describe their observations from a science experiment, or present arguments an historic character would make concerning a particular proposition. For example, what would Abraham Lincoln argue about the causes of the Civil War?
- **Extended tasks** are assignments that require sustained attention in a single work area and are carried out over several hours or longer. Such tasks could include drafting, reviewing, and revising a poem; conducting and explaining the results of a science experiment on photosynthesis; or even painting a car in auto shop.
- **Portfolios** are selected collections of a variety of performance-based work. A portfolio might include a student's "best pieces" and the student's evaluation of the strengths and weaknesses of several pieces. The portfolio may also contain some "works in progress" that illustrate the improvements the student has made over time.

These methods, like all types of performance assessments, require that students actively develop their approaches to the task under defined conditions, knowing that their work will be evaluated according to agreed-upon standards. This requirement distinguishes performance assessment from other forms of testing.

Why try it? Because they require students to actively demonstrate what they know, performance assessments may be a more valid indicator of students' knowledge and abilities. There is a big difference between answering multiple choice questions on how to make an oral presentation and actually making an oral presentation.

More important, performance assessment can provide impetus for improving instruction, and increase students' understanding of what they need to know and be able to do. In preparing their students to work on a performance task, teachers describe what the task entails and the standards that will be used to evaluate performance. This requires a careful description of the elements of good performance, and allows students to judge their own work as they proceed.

What does the research say? *Active learning.* Research suggests that learning how and where information can be applied should be a central part of all curricular areas. Also, students exhibit greater interest and levels of learning when they are required to organize facts around major concepts and actively construct their own understanding of the concepts in a rich variety of contexts. Performance assessment requires students to structure and apply information, and thereby helps to engage students in this type of learning.

Curriculum-based testing. Performance assessments should be based on the curriculum rather than constructed by someone unfamiliar with the particular state, district, or school curriculum. This allows the curriculum to "drive" the test, rather than be encumbered by testing requirements that disrupt instruction, as is often the case. Research shows that most teachers shape their teaching in a variety of ways to meet the requirements of tests. Primarily because of this impact of testing on instruction, many practitioners favor test reform and the new performance assessments.

Worthwhile tasks. Performance tasks should be "worth teaching to"; that is, the tasks need to present interesting possibilities for applying an array of curriculum-related knowledge and skills. The best performance tasks are inherently instructional, actively engaging students in worthwhile learning activities. Students may be encouraged by them to search out additional information or try different approaches, and in some situations, to work in teams.

What does it cost? These positive features of performance assessment come at a price. Performance assessment requires a greater expense of time, planning, and thought from students and teachers. One teacher reports, "We can't just march through the curriculum anymore. It's hard. I spend more time planning and more time coaching. At first, my students just wanted to be told what to do. I had to help them to start thinking."

Users also need to pay close attention to technical and equity issues to ensure that the assessments are fair to all students. This is all the more important as there has been very little research and development on performance assessment in the environment of a high stakes accountability system, where administrative and resource decisions are affected by measures of student performance.

What are examples of successful strategies and programs?

- Charlotte Higuchi is a third- and fourth-grade teacher at Farmdale Elementary School in Los Angeles. Regarding assessment and instruction as inseparable aspects of teaching, Ms. Higuchi uses a wide array of assessment strategies to determine how well her students are doing and to make instructional decisions. She uses systematic rating procedures, keeps records of student performances on tasks, and actively involves students in keeping journals and evaluating their own work. Ms. Higuchi can be seen in action along with other experts and practitioners in the videotape *Alternatives for Measuring Performance* by NCREL and CRESST. (See Jeri Nowakowski and Ron Dietel, below.)
- William Symons is the superintendent of Alcoa City Schools in Alcoa, Tennessee. Seeking higher, more meaningful student standards through curriculum reform, Dr. Symons works with school staff and the community to create a new curriculum focused on standards and an assessment linked to the curriculum. Comments and advice from Dr. Symons and other practitioners and experts are available on the audiotape *Conversations About Authentic Assessment* by Appalachia Educational Laboratory. (See Helen Saunders, below.)
- Richard P. Mills is the commissioner of education in the Vermont Department of Education. Vermont is assessing fourth- and eighth-grade students in writing and mathematics using three methods: a portfolio, a "best piece" from the portfolio, and a set of performance tasks. Other states that have been very active in developing and implementing performance assessments include: California, Arizona, Maryland, New York, Connecticut, and Kentucky. (See Ed Roeber and state officers, below.)

Where can I get more information?

Richard P. Mills
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Vermont Department of Education
Montpelier, VT 05602
(802) 828–3135

Carolyn D. Byrne
Division of Educational Testing
New York State Education Department
Room 770 EBA
Albany, NY 12234
(518) 474–5902

Dale Carlson
California Department of Education
721 Capitol Mall
Sacramento, CA 95814
(916) 657–3011

Don Chambers
National Center for Research in Mathematical Sciences Education
University of Wisconsin at Madison
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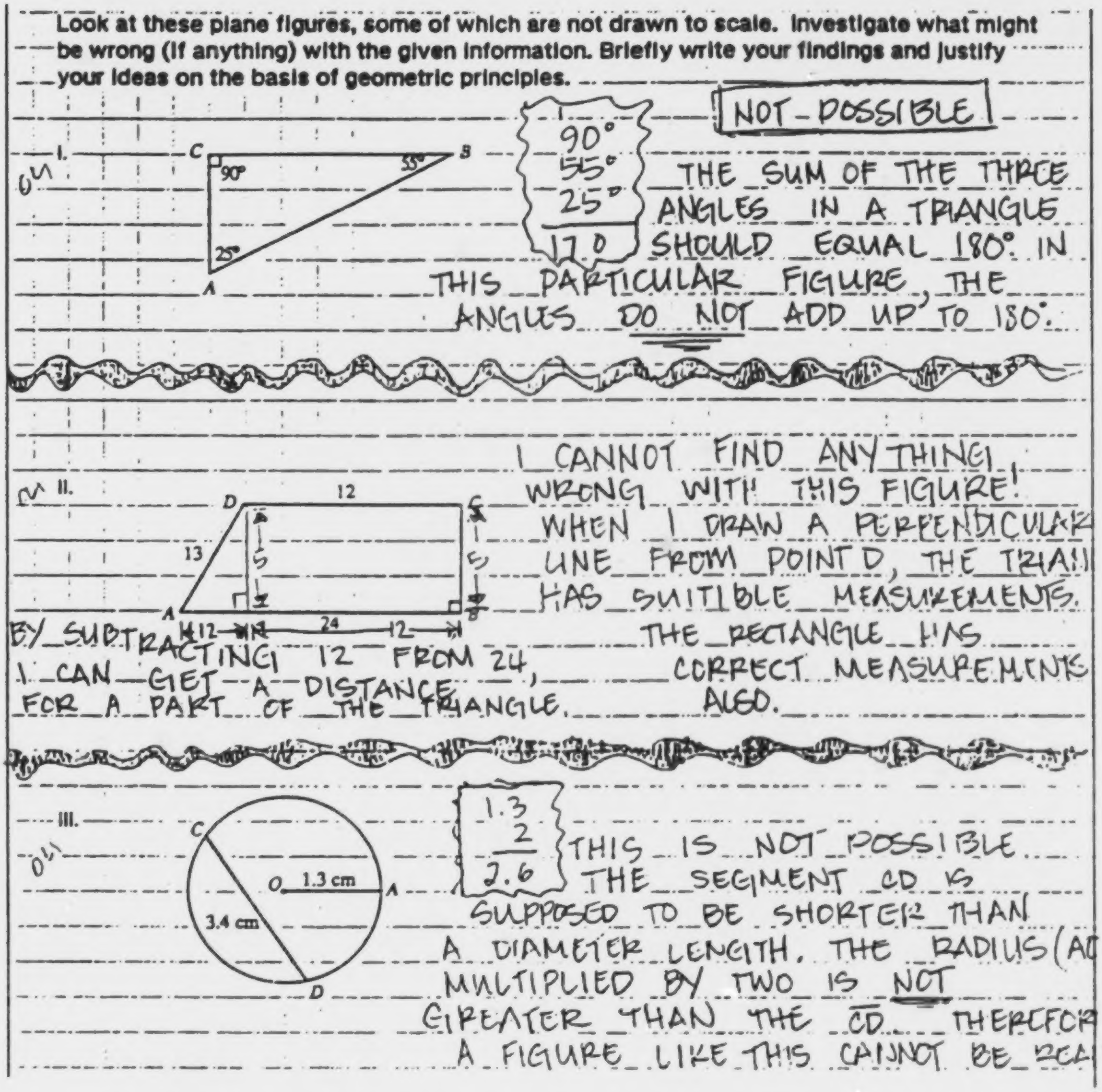
This is the second *Education Research CONSUMER GUIDE*—a new series published for teachers, parents, and others interested in current education themes.

OR 92–3056r

ED/OERI 92-38

Editor: Jacquelyn Zimmermann

An Open-Ended Exercise in Mathematics: A Twelfth Grade Student's Performance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Reprinted, by permission, from *A Question of Thinking: A First Look at Students' Performance on Open-ended Questions in Mathematics*, copyright 1989, California Department of Education, P.O. Box 271, Sacramento, CA 95812–0271.

This **Consumer Guide** is produced by the Office of Research,
Office of Educational Research and Improvement (OERI) of the U.S. Department of Education.

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OFFICE of RESEARCH

Education Consumer Guide

Number 9 December 1993

Student Portfolios: Administrative Uses

What are student portfolios? Portfolios are collections of selected student work representing an array of performance. Beyond this simple definition, student portfolios vary widely in content and purpose and even in who decides what goes into the portfolio. A portfolio might be a folder containing a student's "best pieces" and the student's evaluation of the strengths and weaknesses of the pieces. Or, a portfolio may also contain one or more "works in progress" illustrating how a product, such as an essay, evolved through stages of design, drafting, and revision. Decisions about what goes into the portfolio are typically made by the student creating the collection but may also involve teachers and peers as well as structural requirements for the entire project.

The purpose of the portfolio may be simply to support instruction or it may also be seen to support administrative functions. This *Consumer Guide* presents information on what has been learned about using portfolios for administrative purposes, some of the problems involved, and some possible solutions to those problems.

How are portfolios used for instruction? Many teachers, administrators, and policymakers have learned that portfolios can provide valuable support for quality teaching and improved learning in many ways, including the following:

- Conveying to students, as an extension of instruction and discussion, the features or criteria of quality performance, so that they can apply these criteria to their own work and monitor their own progress;
- Engaging students in activities that are likely to result in products worthy of sharing with others, retaining in a portfolio, and referring back to periodically; and
- Chronicling student work and opening a new channel for substantive communication between students and classroom teachers that is focused on individual student work.

How are portfolios used for administrative purposes? While there is a growing understanding of instructional uses for portfolios, they are increasingly being called upon to serve administrative functions as well. Student portfolios are being used for **accountability reporting, program evaluations,** and **for a variety of administrative decisions affecting the future of individual students**. Both inside and outside of schools, observers are uneasy about what role portfolios, commercial tests, and other assessment tools should play in these administrative activities.

The foremost question being asked is:

- **What do we know about the technical adequacy of portfolios for administrative decision making and reporting?** How comprehensive are portfolios in covering important cognitive skills? How valid are they for the purposes schools set for them and for the uses that go beyond these purposes? How reliable are the ratings teachers assign to a student's portfolio? Would someone else give a different rating? How generalizable are portfolio assessments in a specific curriculum area? Would a different assessment of the same students in that curriculum area yield different results?

  These questions concerning technical quality take on heightened importance because of the potentially enduring effect of various administrative decisions on individual students. A wide variety of administrative decisions (such as retaining some students in grade, providing special services for others, and admitting still others to special programs) affect students' futures with or without assessment information from student portfolios. The issue is whether current portfolio systems are sufficiently informative and technically strong enough for these added functions. If they are, fine. If they are not, teachers and administrators need to understand what would be involved in making them technically adequate.

A second question spins off the first:

- **How will using portfolios for administrative decisions and reports affect their utility as instructional tools?** Any move to adopt structural and content requirements that may be needed to make portfolios more suitable for accountability, evaluation, and student-level administrative decisions may well have implications for both the attractiveness and utility of portfolios as instructional tools. Here, the crucial question is whether portfolios that have been revamped to satisfy technical requirements can still play a constructive role in teaching for understanding and in motivating students to be active learners. For example, would students work as enthusiastically on assigned projects as they would on projects they were allowed to choose on their own? Would the amount and quality of their work suffer?

Before turning to a discussion of these two concerns, it is appropriate to step back and consider the use of portfolios in administrative decisions and reports.

Why are portfolios used in administrative decisions and reports? Experience shows that portfolios—as well as any other data source—will be used for any number of administrative matters, with little regard to their original purpose or limitations, simply because they are available at the time information is needed. Moreover, those who have observed how traditional multiple-choice tests narrow curriculum are determined not to tolerate continued dominance of multiple-choice items in any area that would influence curriculum and instruction. Thus, many educators find themselves willing to try portfolios as a way to support reform of both curriculum and assessment.

What does the research say? Experience with classroom-level portfolio projects shows that many portfolios are currently highly individualized, if not intensely personal. Judged in light of available standards—some district and school policies, court decisions, and professional association standards—many of our existing student portfolios appear to contain too little information for "high-stakes" administrative uses.

Despite the obvious importance of student learning, no single measure of student knowledge—not even richly documented, broad-based portfolios—should be used as a mechanism for meting out rewards and sanctions for students, schools, or programs. Other indicators must be considered for fair and rational decision making. For example, even within the area of student learning, additional information can be gleaned from systematic teacher observations, short-answer quizzes, multiple-choice tests, and other assessment tools.

Practical procedures for addressing technical problems in performance assessments, including portfolios, are discussed below.

What are some problems and possible remedies? Below are some of the problems and possible remedies concerning the use of portfolios for administrative decision making and reporting:

- **Students are ill-prepared to carry out work that is a required part of a portfolio.** This, in fact, is an ever-present bundle of problems, which extends well beyond portfolios and assessment. Several strategies are needed.

- If students have not had an adequate opportunity to learn the subject matter and appreciate some of the linkages among various concepts and procedures, any form of assessment—not just portfolios—will be both meaningless and unfair. Addressing this problem will likely involve changes in course offerings, curriculum coverage, and instructional strategies (as well as staff development programs and possibly school finance). Some assessment paradigms (Baker; See Ron Dietel, National Center for Research on Evaluation, Standards, and Student Testing—CRESST, below) mitigate the problem of student differences in background knowledge by providing fairly extensive subject matter material with each task.

- If students have not been exposed to or had practical experience in applying their subject matter knowledge to novel problems, in solving open-ended problems, or in working on extended projects or projects that require collaboration with other students, they will likely perform less well than students who have had these experiences. This problem needs to be addressed in the same fashion as the previous problem of disparity in opportunities to learn the subject matter.

- If students have limited proficiency in reading, writing, and speaking English, they will likely perform less well on examinations requiring these skills than students who have a command of the English language. This problem may be particularly severe for writing tasks and open-ended problems that require written or oral explanations. Various approaches to the problem are possible, including bilingual support, translated materials, and opportunities for students to tackle some problems in their primary language. Some researchers (O'Neil et al; See CRESST, below) are also developing and pilot-testing simulated tasks that retain the content and conceptually challenging character of regular performance tasks but place less linguistic demand on limited-English-proficient students.

- **Different students have worked on different tasks or projects** that are not comparable either to each other or across classrooms. Under the worst circumstances, this common situation is like the classical problem of comparing apples and oranges. Several things can be done:

- Develop general criteria that encompass a wide variety of projects and products, and train teachers and other raters to use the criteria;

- Include "on-demand" tasks that all students complete as part of their portfolio collection;

- Arrange to have more than one rater for each of the portfolios; and

- Use more than just portfolios as the source of evidence of student accomplishments.

- **Teachers have used different criteria for rating portfolio work** or come up with different scores even when they use the same criteria. This problem can be solved with training, planning time, and the involvement of teachers and other people with subject matter and instructional expertise. Teachers need to be involved in the development of a common set of criteria and the selection of rubrics that very specifically define performance. Research shows that under these conditions teachers and other raters can be trained to rate student work consistently (referred to as high inter-rater reliability).

- **Teacher guidance and peer review are different in different classrooms.** Where comparisons across classrooms are desired, fairness compels educators to develop rules about teacher guidance and peer review. So many changes are required in reforming curriculum, instruction, and assessment that even the most experienced, most knowledgeable teachers need training and an opportunity to work things through with other teachers and subject matter experts. Reaching agreement on how much and what type of guidance should be given on assessed work can be a part of these training sessions. Such staff development is absolutely essential where every teacher is involved and comparisons are to be made.

- Peer review can also be troublesome since students placed in higher ability groups would likely receive more helpful peer input. As a consequence, many teachers and assessment experts have argued that peer review has to be given up if student-level comparisons are to be made equitably.
- Parent, sibling, or other help may also present a problem in assessing student performance based on portfolio projects that extend over a period of time. Sending notes home with guidance for parents has been one approach, and student honor codes have been another.

- **Students have worked on only a small number of tasks.** Because performance tasks and extended projects take time to plan and carry out, many portfolios contain a small number of products. However, since not all tasks are alike, it is difficult to specify how many should be required. But researchers (Shavelson et al; See CRESST, below) have learned that about 10 tasks are needed to assess a student's understanding of a particular subject area, such as science.

  With fewer than 10 tasks, we can only judge how a student did on the particular tasks undertaken (the student might perform quite differently on a different set of tasks). This problem of limited generalizability of tasks can be addressed by increasing the number of tasks for all students or by not relying solely on portfolio work to judge a student's accomplishments.

  Occasionally, fewer tasks would be needed if each task came with fairly extensive passages of task-related information, such as those used by some researchers (Baker, See CRESST, below) to assess deep understanding of history, social science and science. On the other hand, more tasks would be needed if the tasks were less carefully structured or less carefully researched, or the content area to be assessed were defined more broadly, for example, mathematics and science combined.

  Increasing the number of tasks in a portfolio may not be a bad idea anyway: It would give additional emphasis to student production of papers and other work products. In terms of administering tasks or assigning work, the 10 might be carried out over an extended period of time as a continuing cycle of instruction, performance, and assessment. At the opposite extreme, 10 tasks that require 15 minutes each might be administered in a single morning at the high school or junior high school level.

In addition to these problem-specific strategies, several general strategies have been used to buttress the technical underpinnings of portfolios—that is, training raters to criterion (a pre-established standard of acceptability), continued in-service training for teachers, periodic sharing of portfolios across classrooms, auditing, and various research and development activities.

What instructional utility do technically strengthened portfolios have?

Where the sole purpose of portfolios is to provide instructional support for curriculum reform, they and the rules that govern them can be created and changed by students in collaboration with their teacher. Adding administrative uses to portfolios results in an increasing standardization and at least a partial shift in ownership. The shift is away from individual students, teachers, and classrooms, and to the education system in general—a broader but less well defined audience.

A student's sense of ownership of his or her portfolio may well be linked with interest, motivation, and actual engagement and learning, but this is no reason to conclude that students must have complete control over their own portfolios to make portfolio systems work. Some compromise between centralized structure and local, classroom level discretion may work just as well.

Moreover, a variety of other factors may be equally important in fostering student motivation and learning. More experimentation and research may provide an answer to this controversy. Meanwhile, giving priority to staff development and equity issues—which is essential if portfolios are to be used in administrative decisions and reporting— can be an area of agreement and an important step in advancing student performance.

Who is working in this area?

- Winfield Cooper is editor of the quarterly *Portfolio News* (a publication of the Portfolio Assessment Clearinghouse). It provides 20 to 30 pages of articles, project briefs, and other materials by teachers, project directors, and researchers about local and state portfolio projects and serves as an information exchange for people interested in portfolios.
- PROPEL is a continuation of ARTS PROPEL, a cooperative research project involving the Pittsburgh Public Schools, Harvard Project Zero, and Educational Testing Service (ETS). Throughout both stages of the project, portfolios have been used along with classroom observations and external assessments to assess learning in three content areas: imaginative writing, music, and the visual arts. Information on the PROPEL/ARTS PROPEL approach is now available from ETS in four handbooks: a general overview handbook and one for each of the three content areas. The handbooks describe program and teacher strategies and illustrate student production, perception, and reflection in projects that extend over time. PROPEL has also used an audit procedure to verify portfolio ratings. (See PROPEL/ARTS PROPEL, below.)
- Several states are using student portfolios in combination with other information on student accomplishments in their accountability systems. For example, Vermont is assessing 4th and 8th grade students in writing and mathematics using three methods: a portfolio, a "best piece" from the portfolio, and a set of equivalent performance tasks. California has launched 21 pilot projects (11 with portfolios) involving the collaborative efforts of school districts for improving alternatives in assessment. Kentucky will be monitoring schools on the changes, over time, in the percentage of successful students and has established an elaborate system that includes portfolio work for measuring success .
- Lauren Resnick and Marc Tucker are co-directors of the New Standards Project. They are developing a new assessment system to support world-class standards of performance for all students. The system employs advanced forms of performance assessment, such as portfolios, exhibitions, projects, and timed performance examinations. Among its partners are the following states: Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Iowa, Kentucky, Maine, New York, Oregon, South Carolina, Texas, Vermont, Virginia, and Washington.
- Dozens of research projects are investigating new forms of assessment, including portfolios. Most of those cited in this Consumer Guide were carried out by CRESST researchers, with funding from OERI, the National Science Foundation, or both. A listing of all large projects in this area is maintained by CRESST.

Where can I get more information?

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This is the ninth *Education Research CONSUMER GUIDE*—a series published for teachers, parents, and others interested in current education themes.

OR 93-3107
ED/OERI 92-38

This **Consumer Guide** is produced by the Office of Research, Office of Educational Research and Improvement (OERI) of the U.S. Department of Education.

Richard W. Riley, Secretary of Education
Sharon P. Robinson, Assistant Secretary, OERI
Joseph C. Conaty, Acting Director, OR

authentic assessment

FROM PORTFOLIOS TO PERFORMANCE

There are various methods to measure student achievement that don't rely on standardized tests; here are a few

1 PORTFOLIOS

- Contain samples of student work, chosen at regular intervals by both the teacher and student
- Offers opportunity for students to begin self-assessing their work, thereby improving their ability to know what to do to improve their performance
- Allow comparisons of work at the beginning of instruction and work at the end of instruction, enabling students to see their growth and teachers to understand learning styles
- Can be shared with parents to provide a more realistic view of achievement than grades on a report card

2 OPEN-ENDED QUESTIONS

- Allow students to demonstrate their knowledge through various forms of communication (words, diagrams, charts, etc.)
- Helps students clarify and express their own thinking
- Questions (which may or may not have more than one correct answer) can show how students interpret and organize information, make generalizations and understand basic concepts
- Can be scored by using a rubric (continuum of learning)

Students at Alvarado Elementary learn how to make change as part of a "life skills" class.

3 STUDENT PERFORMANCES

- Assesses student ability to perform a task or use a skill
- Assessment may be the same as activities students do every day in class so students don't suffer from "testing phobia"
- Uses actual hands-on materials to assess level of knowledge
- Operates on a concrete rather than abstract level
- Embodies the tasks and projects that people are called upon to perform in the "real world"

4 TEACHER OBSERVATIONS

- Allows teacher to observe students performing specific skills or working in specific areas (social interaction, problem-solving, work habits, etc.)
- Can be used for individuals or for groups
- Should be done frequently to be most effective
- Can be used in conjunction with video

5 TEACHER-STUDENT INTERVIEWS

- Allows teacher and student to share thoughts and information in a one-on-one interview
- Can be used informally to obtain quick and specific information or in a more formal setting
- May be used along with portfolios
- Allows students to raise questions, concerns about learning and give their views, opinions
- Students feel that teachers really care about them and their academic achievement

6 STUDENT SELF-ASSESSMENT

- Students may evaluate their own work as well as the teacher's
- Students may critique each other's work
- Improves the quality of their work
- Develops critical thinking skills

7 VIDEO

- Can be used to tape students working or teacher teaching
- Can be replayed for review or to reemphasize lessons
- Can be shared with students, parents at a later date ●

Source: *Visions*, newsletter for the Education for the Future Initiative, sponsored by the Pacific Telesis Foundation. August 1993, page 4. Reprinted with permission.

Common characteristics of authentic assessments

- Ask students to perform, create or produce something
- Measure outcomes of significance
- Tap higher-level thinking and problem-solving skills
- Use tasks that represent meaningful instructional activities
- Invoke real-world applications
- People, not machines, do the scoring, using human judgment
- Require new instructional and assessment roles for teachers
- Provide self-assessment opportunities for students
- Can be done individually or in groups
- Learning does not end with the assessment
- Explicit performance criteria

Source: *Visions*, newsletter for the Education for the Future Initiative, sponsored by the Pacific Telesis Foundation. August 1993, page 2. Reprinted with permission.

NCEO POLICY DIRECTIONS

Number 1

May 1994

Guidelines for Inclusion of Students With Disabilities in Large-Scale Assessments

Background

Students with disabilities have been excluded to an unreasonable extent from large-scale assessment programs at the national, state, and local levels. Large-scale assessment programs of note include the *National Assessment of Educational Progress* (NAEP), considered to be the nation's "report card," state assessment programs, and school district assessments that are used to describe the performance of all students in a given location (the nation, a state, or a school district).

One implication of this exclusion practice is that students who are left out of assessments tend not to be considered during reform efforts. Another is that estimates of performance for states on such assessments as NAEP are not comparable because of differential participation rates. The 1990 and 1992 Trial State NAEP exclusion rates range from 33 percent to 87 percent of students with disabilities.

The following guideline used by NAEP has been adopted by many states for their assessment programs. It reads:

> *Students on Individualized Education Programs (IEPs) may be excluded if "The student is mainstreamed less than 50 percent of the time in academic subjects and is judged to be incapable of taking part in the assessment, or the IEP team has determined that the student is incapable of taking part meaningfully in the assessment."*

This guideline now has been the target of much criticism. But, of course, the guideline is not the sole source of exclusion. There are actually many factors that underlie the exclusion of students with disabilities from large-scale assessments. They include:

- The use of **vague guidelines** that allow local decisions to be made about the participation of students who are on Individualized Education Programs (IEPs)
- **The differential implementation** of guidelines
- The **failure to monitor** the extent to which the intent of the guidelines is followed
- **Sampling plans** that systematically exclude students who are in separate schools and students who are not in graded programs
- An **unwillingness to make accommodations** in assessment materials and procedures that will enable some individuals to participate
- An **altruistic motivation** to lessen the emotional distress to the student who is not expected to perform well.

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Develop Guidelines

An underlying premise is that large-scale assessment programs should include as many students with disabilities as possible without destroying desired technical characteristics, given the purpose of the assessment. A consistent set of guidelines is needed. It should have three components:

- **Guidelines for inclusion**
- **Guidelines for accommodations and adaptations**
- **Monitoring system to ensure adherence to guidelines**

Alternatives

Not all large-scale assessment programs use the same approach for including students with disabilities. States, in particular, vary considerably in both the guidelines for making decisions about the participation of students with disabilities and for determining what accommodations and adaptations are used during assessments.

Each approach has its advantages and disadvantages. Some rely too strongly on the opinion of one or more individuals whose opinions may be biased by unrelated issues. Others are too arbitrary, and not linked to the way students are currently served in schools.

It is possible that legal issues could make some options problematic. For example, if a large-scale assessment has consequences for the student, issues of access and accommodations will have to be addressed.

Other considerations impinge on these alternatives as well. For example, many large-scale assessment programs do not make adequate differentiations of student performance at the lower end of performance. With the inclusion of more students who typically have performed at the lower end of the scale on large-scale assessments, there will be a need for greater differentiation at this lower end. All of these factors in interaction must be considered when selecting the best approach.

Recommendations

Based on interactions with numerous policymakers, assessment personnel, and disability advocates, the following guidelines are recommended for large-scale assessment programs to use when including students with disabilities in their assessments.

▶ *Inclusion*

Including students with disabilities in large-scale assessments needs to occur at three points:

1. Instrument Development
Include students with disabilities when trying out items. This will help to identify problems and the need for less difficult items. Instruments can be dropped, modified, or added during this development phase to allow greater numbers of students with disabilities to participate meaningfully.

2. Instrument Administration
Include all students with disabilities in taking some form of the assessment. When a sampling procedure is used for an assessment, the sample must be representative of all students.

- **Allow partial participation in an assessment.** Some assessments have components that could be completed by an informed respondent. Include students with disabilities in these components, even if they cannot respond to other components.

- **Use an alternative assessment for some students.** For a small percentage (up to 2%) of the student population or the population sample, have them participate in an assessment that is developed as an alternative to the regular assessment. These students should be those with the most severe cognitive disabilities. To set up an alternative accountability system for these students, require school personnel to complete a form asking for functioning level information beyond that typically required on "excluded student" forms in large-scale assessments.

3. Reporting Results
Data on the performance of all students, including students with disabilities, are needed and therefore, scores must be reported. Reports should include results from students taking alternative assessments and information from informed respondents. If a student is

excluded from testing for any reason, that student should be given a score of zero.

▶ ***Accommodations and Adaptations***
Not all students with disabilities will need accommodations during assessments. But modifications in assessments should be used when needed to increase the number of students with disabilities who can take tests. Accommodations and adaptations that teachers currently use with students during instruction and that are permitted by society should be used during assessments. Initially, it is possible to use modifications that:

- **Make a student more comfortable and secure in the test setting** (For instance, use carrels and separate room administrations.)

- **Do not destroy the validity of measures** (For example, use amplification, magnification, large print version, Braille version, augmentative communication, sign language, or a word processor.)

Other modifications that may raise questions about the technical characteristics of measures should be studied. Other types of accommodations and adaptations include:

Presentation alternatives —
audiocassette, oral administration
Response alternatives —
dictate to scribe, Braille writer
Setting alternatives —
individual administration, hospital administration
Scheduling alternatives —
extended time, multiple test sessions

As new technologies and procedures for accommodations and adaptations are developed, they should be included in the possible accommodations and adaptations for instruction and testing.

▶ ***Monitoring***
Monitoring how well the intent of the guidelines is followed should be done so that no student is excluded who could participate with accommodations and adaptations. This can be accomplished by requiring a specific person in the district to sign off for each student who does not participate in the regular assessment and by having the student complete an alternative assessment. Or, someone can provide information about the student. Other possibilities include the following:

- **Conduct follow-up studies of excluded students** to verify that these students could not participate in the assessment with reasonable modifications, and report the results of the follow-up studies.

- **Remove incentives for exclusion** by assigning zero scores to all students who are excluded from assessments.

- **Set up a panel to review requests for new forms of testing modifications** so that decisions can be made about the reasonableness of the requested modifications, or about the need for research. ▲

▶ Resources

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NCEO Policy Directions are a series of reports that address national policy issues related to students with disabilities. This report was prepared by Jim Ysseldyke and Martha Thurlow, with input from many individuals.

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The Center represents a collaborative effort of the University of Minnesota, the National Association of State Directors of Special Education, and St. Cloud State University.

The Center is supported through a Cooperative Agreement with the U.S. Department of Education, Office of Special Education Programs (H159C00004). Opinions or points of view do not necessarily represent those of the U.S. Department of Education or Offices within it.

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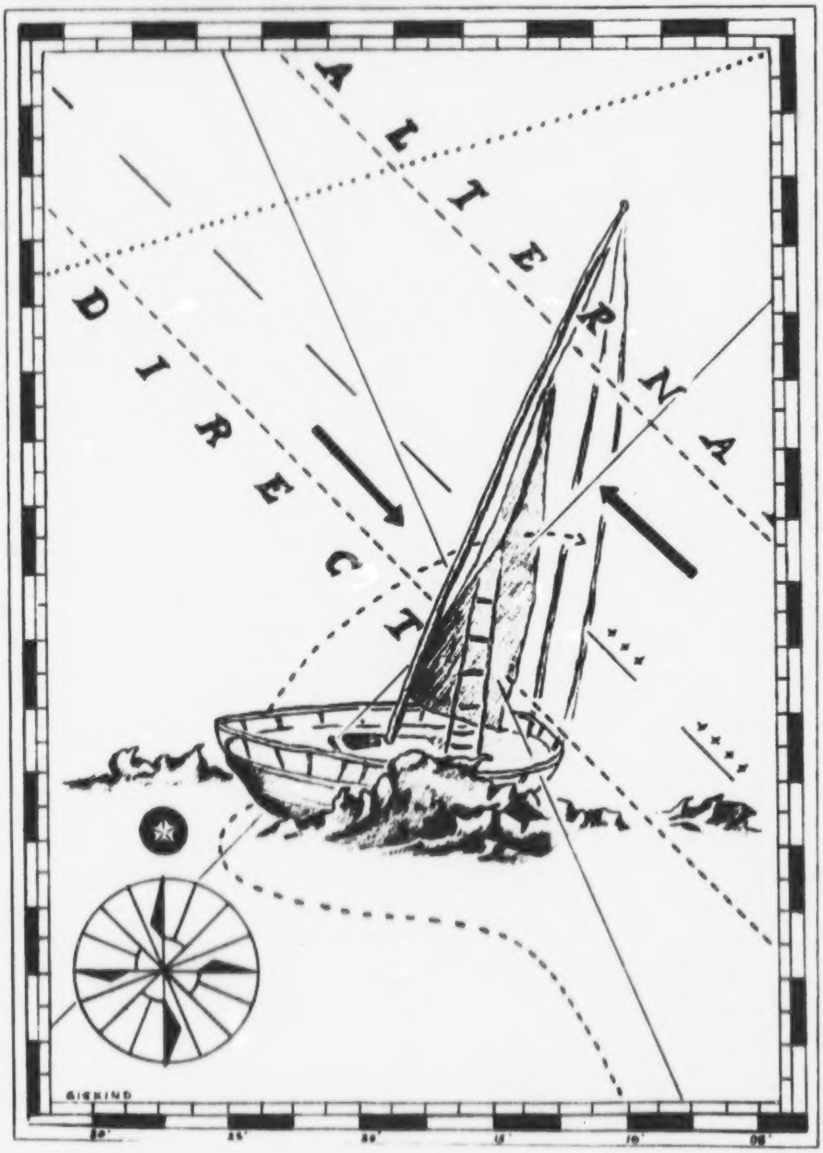
Critical Issues That Will Determine the Future of Alternative Assessment

Many practitioners are unsure whether to venture into the torrents of unfamiliar assessment strategies or to drift quietly in education's backwaters, waiting to see if this movement crests and ebbs as quickly as have dozens of others, Mr. Worthen observes.

By Blaine R. Worthen



Few current movements have caught the attention of educators as quickly as the move toward more direct assessment of student performance. Efforts to develop useful alternatives to standardized testing have proliferated during the past several years.[1] Major journals that serve educational practitioners have devoted large sections or entire issues to thoughtful analyses of assessment alternatives. (Interested readers should consult the April 1989 and May 1992 issues of *Edu-*

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Illustration by Sharon Siskind

cational Leadership and the May 1989 and May 1991 issues of the *Kappan.*) State and national associations of professional educators – including the Florida Educational Research Association, the Association for Supervision and Curriculum Development (ASCD), and the Education Commission of the States – have sponsored symposia or special conferences to consider alternative ways to assess student performance. And, not to be left behind, state legislatures have begun to enact laws that mandate the use of direct assessment of student performance as the means of determining how well schools, districts, and state education systems are performing.[2] In short, alternative assessment's rising tide has overflowed most of education's shoreline, and the schools are increasingly being flooded with calls for more direct assessment of student performance.

Despite the surge of interest in alternative assessment, concerns from supporters who fear that such assessments are often launched without adequate thought and criticisms from those who favor more traditional means of assessment have combined to create a strong undertow. Differences between proponents and opponents have sparked vigorous debates that have created confusing crosscurrents, leaving many educators feeling rudderless as they attempt to chart the course of their schools' assessment programs.[3] Many practitioners are unsure whether to venture into the torrents of unfamiliar assessment strategies or to drift quietly in education's backwaters, waiting to see if this movement crests and ebbs as quickly as have dozens of others.

In this article, I propose to 1) describe briefly how alternative assessment differs from more traditional forms, 2) outline the forces that have caused the recent upsurge of interest in alternative assessment, and 3) identify some major issues that educators must resolve if alternative assessment is to reach its full potential in our schools.

A DEFINITION OF ALTERNATIVE ASSESSMENT

Several labels have been used to describe alternatives to standardized tests. The most common include "direct assessment," "authentic assessment," "performance assessment," and the more generic "alternative assessment," which I shall use here.[4] Although these descriptors reflect subtle distinctions in emphasis, the several types of assessment all exhibit two central features: first, all are viewed as *alternatives* to traditional multiple-choice, standardized achievement tests; second, all refer to *direct* examination of student *performance* on significant tasks that are relevant to life outside of school.

Proponents of alternative assessment prefer it to more traditional assessment that relies on indirect, "proxy" tasks (usually test items). Sampling tiny snippets of student behavior, they point out, does not provide insight into how students would perform on truly "worthy" intellectual tasks. Conversely, they argue that student learning can be better assessed by examining and judging a student's actual (or simulated) performance on significant, relevant tasks. As Jay McTighe and Steven Ferrara note, such assessment can focus on students' *processes* (revealed through learning logs, "think-aloud" observation sessions, self-assessment checklists); *products* (e.g., diaries, writing portfolios, art portfolios or exhibits); or *performances* (e.g., typing tests, dramatic or musical performances, oral debates).[5]

WHY THE CURRENT INTEREST?

Many educators – including many advocates of alternative assessment – erroneously view direct assessment of student performance as a newcomer to the educational scene. Not so. Oral examinations – one variety of direct assessment – date back at least to Socrates. Other time-honored examples of direct assessment of performance include judging performances in music, athletics, and business education; proficiency testing in languages (conversation and translation); competency testing for pilots and dentists; hands-on assessment in such vocational programs as welding, auto mechanics, and carpentry; and the use of art portfolios – to name only a few.

Of course, insightful teachers recognize that alternative assessment has long constituted the core of their methods for assessing student learning in the classroom. Elementary teachers were keeping anecdotal "running records" and folders of student work long before such records were legitimized and refined by recent attention to better ways of using portfolios of student work to assess student learning. Student performances or samples of student products have long been the basis for teachers' evaluation of student outcomes in areas as diverse as music, drama, debate, art, shorthand, creative writing, and physical education. Many teacher-made tests present students with important, "real-life" tasks that they must perform correctly to receive passing scores. Creative teachers have had students engage in self-assessment and peer assessment. In short, our nation's classrooms have been quietly awash in such performance-based assessment for decades.

Then why the recent upsurge in calls for alternative assessment? Why the sudden urging that such assessments replace standardized tests (norm-referenced achievement tests, minimum competency tests, and the like)? Why propose alternative assessments as a way of judging not just how well individual students are performing, but also how well schools, districts, and states are fulfilling their educational mission? The answer lies in several forces that have flowed, in succession, through education's tangled tributaries in the past two decades.

1. Demands for accountability. During the 1970s it became apparent that the public was uncertain of the ability of American schools to deliver instruction that would produce desired student outcomes. State legislators responded by passing a spate of "educational accountability" laws. Most such enactments called for evidence in the form of test scores that would demonstrate that schools were performing adequately. Soon schools in 37 states found themselves inundated with new requirements for minimum competency tests.

But the blue-ribbon panel that issued *A Nation at Risk* noted that the minimum competencies quickly became the maximums that schools attempted to attain, with the unintended consequence of lowering standards across the board. A variety of other types of standardized testing programs were initiated in the hope that they would correct the educational deficits identified by the panel. Lorrie Shepard has cited evidence that these programs have had similar results: "Nationally, scores on tests of basic skills have increased at the expense of higher-order thinking and problem solving."[6]

2. Use of high-stakes testing. Both minimum competency tests and standardized achievement tests have been used to make "high-stakes" decisions. Not only have student promotion and graduation decisions been based on such test scores, but increasingly these test scores have also been used in unanticipated ways that have far-reaching consequences for individual schools and school districts. Both journalists and legislators pressed for test scores to be published in ways that permitted patrons to make direct comparisons between individual schools and school districts.

Soon business leaders, looking for the best place to locate a new enterprise, were examining state and school district summaries of test scores as eagerly as parents were using them in shopping for the best location in which to buy a home. Prior to the 1970s, standardized, multiple-choice achievement tests had dominated educational assessment for half a century; yet they had not made much impact on individual teachers or school systems. Educators were free to ignore the results of such tests with near impunity. But no more. With the rush to base high-stakes decisions on such test scores, the importance of the scores increased enormously. The competence of both students and teachers was being judged by students' performance on tests.

3. Negative consequences of high-stakes testing. The proponents of high-stakes tests fully intended that they serve as levers to lift and propel stagnant school curricula toward improvement. Such tests could set more precise educational targets for both students and teachers, it was argued, thus ensuring that essential knowledge and skills would be learned.

However, it soon became apparent that the pressures that accompanied high-stakes testing resulted more often in other, less beneficial practices and outcomes. Educators were quick to realize that targeting their instruction at the specific knowledge and skills to be tested would yield a jump in test scores. Teachers and principals wanted to provide their students with the best possible opportunity of succeeding on the tests, and they didn't want their classrooms and schools to look bad when compared with others. Thus were the seeds of measurement-driven instruction sown.

Before long, they had matured into a tangled thicket of thorny problems, including the sometimes innocent but nonetheless insidious practice of teaching to the test. This practice took a variety of forms. At one extreme was the more pernicious problem of outright cheating – teachers coaching students on actual test items. At the other was the less pernicious but more pervasive problem of narrowing the curriculum and lowering the level of student learning by allowing curriculum and instruction to focus primarily on the basic knowledge and skills included on the high-stakes tests – at the expense of the important, higher-order skills not typically tested (e.g., analysis, synthesis, complex problem solving, or oral expression). Predictably, as curricula narrowed to focus more and more on the basics, the outcomes of the tests appeared to improve, even as they became more corruptible. Soon the Lake Wobegon effect emerged, with all 50 states reporting test scores above the national average in virtually every basic content area covered by school and district testing programs.[7] Ironically, national assessments were simultaneously discovering abysmal gaps in students' ability to read a map, use a bus schedule, or balance a checkbook.[8]

4. Increasing criticisms of standardized tests. For most of the 20th century, standardized, multiple-choice tests have served as the primary method for assessing how well schools have been educating America's children and youth. Even though they have never been free of detractors, no serious assessment alternative challenged their position, mostly because no other method could hope to match their economy or efficiency. But as scores on such tests began to be used for increasingly crucial decisions, the limitations of the tests loomed larger. Even psychometricians began to point out that some of the tests used to make high-stakes decisions were more parodies than paragons of measurement.

Soon thoughtful concerns about the inadequacies or misuses of specific tests were drowned out by calls to abolish all standardized tests, calls often accompanied by a litany of criticisms of all multiple-choice tests. Stung by what they perceived as unfair criticisms, commercial test companies and supporters of standardized testing were quick to offer rebuttals. Some of the most common criticisms and rebuttals have been summarized elsewhere and will not be repeated here.[9] It is important to point out, however, that, on closer inspection, most of the criticisms are not really criticisms of the tests but rather of instances in which they have been misused. Many tests designed for use in making low-stakes decisions were soundly criticized when used in high-stakes contexts, where they were never intended to serve. It would be just as reasonable to condemn brass candlesticks because they have on occasion been used to commit murder.

I do not intend to offer a defense of multiple-choice tests, for they are often flawed and are always limited to assessing only certain outcomes. But I do wish to call for fair play in critiquing such tests and for an end to the excessive test-bashing that some critics would gladly fan into test-burning. The success of the alternative assessment movement must not depend on how effectively its most passionate firebrands carry out a scorched earth campaign against standardized testing. Ultimately, the success of alternative assessment will be judged by the persuasiveness of its *internal* rationales, rather than by *external* contrasts with traditional assessment. Criticisms of standardized testing are obviously less relevant to the future of new modes of assessment than are careful analyses of the most important advantages and drawbacks of those alternative assessment methods themselves.

While consideration of all the potential benefits and drawbacks of alternative assessment is beyond the scope of this article,[10] I must discuss several critical issues that will be pivotal in tilting the balance either in favor of alternative assessment or against it. Before addressing these issues, my position concerning alternative assessment should be made clear.

I believe that alternative assessment holds great promise. It has the potential to enrich and expand the very nature of the information that assessments provide. It should be the backbone of assessment procedures within individual classrooms. Because educators are unlikely to ignore the content of high-stakes tests, the presence of more worthy and relevant assessment tasks on such tests should spur educators to develop more appropriate instructional emphases. Indeed, education's ultimate goals should be directly represented in the complex performances selected as the alternative assessment tasks. These tasks should provide *direct* measurement of *real* performance on important tasks. Whenever it is feasible to use valid, representative, direct assessment tasks, they are preferable to indirect measurement. But the high potential of alternative assessment can be realized only to the extent that the following dozen issues are successfully addressed.

> If alternative assessment is to survive, its proponents must clarify its concepts and terminology.

CRITICAL ISSUES FACING ALTERNATIVE ASSESSMENT

Each of the following 12 issues represents a challenge that alternative assessment must meet if it is to reach its full potential.

1. Conceptual clarity. As yet, there is too little coherence to the concepts and language being used in both written and oral discourse about alternative assessment, performance assessment, authentic assessment, direct assessment, practical testing. . . . Need I continue the list? Those who write about these types of assessments have not carefully nailed down their definitional edges or delineated clearly what belongs to a particular label and what does not.[11] Consequently, it becomes nearly impossible to synthesize or summarize what has been said without risking distortion and oversimplification.

Of course, the simplistic imposition of common terminology may not by itself lead to greater conceptual clarity about what I have chosen to call alternative assessment. But the classic caution that advancement of a field is often tied to its possession of a univocal language (in which each concept is invariably described by the same term, and each term refers to only one concept) should not be lost on those hoping to advance the cause of alternative assessment. Until this occurs, the entire movement risks becoming trapped in the thickets of tangled terminology and conceptual clutter typical of fields that are content to ignore the coherence of their concepts and language. Those who recall how interest in the "discovery" method of teaching surged through the schools in the 1960s will remember how quickly it slowed to a trickle in the 1970s when it became clear that one researcher's "guided discovery" method was identical to the "expository" method of another, while closely resembling the "independent discovery" method of a third, and so on. This promising field of inquiry was soon submerged in semantic swamps that no one bothered to drain.

If alternative assessment is to survive the decade and develop into a potent force for educational improvement, then its proponents must take time out from advocating its use in order to clarify its concepts and terminology. Alternative assessment cannot continue to be, as one friendly critic put it, a movement whose only definition is that "it is everything that a multiple-choice test is not."[12]

2. Mechanisms for self-criticism. No reform movement should be without skeptics among its supporters. Yet such internal self-criticism is rather scarce among proponents of alternative assessment, leading some thoughtful commentators to express concern about the one-sided nature of the current discourse on the topic. For example, Richard Nicoll worries about the prevailing attitude that little is wrong with alternative assessment. He cautions that "new assessment techniques must be able to stand up to the same level of criticism given to traditional tests because at some point the honeymoon with performance assessment will end."[13]

Unfortunately, the future of alternative assessment could be threatened by its very popularity. The more broadly accepted it becomes, the less frequently it will be challenged, and the more likely it will be that anyone who questions or criticizes this movement will be dismissed as a cranky curmudgeon – if not an outright obstructionist standing athwart the path of progress. If voices of caution are drowned out by the clamor for more rapid adoption of methods of alternative assessment, advocates of those methods could easily forget that self-criticism is the only road to continuing improvement of any movement and, indeed, is essential if that movement is to make a lasting contribution. It is but a short step from such forgetfulness to the point where a movement gains unthinking disciples who hold its tenets as articles of faith, while its leaders champion it with more religious fervor than analytical thought.

Fortunately, some of alternative assessment's most articulate advocates have recognized this problem and urged us to take steps to prevent it from undermining this movement.

> If the current interest in alternatives to standardized testing is to be anything but this decade's flurry, we have to be as tough-minded in designing new options as we are in critiquing available testing. Unless we analyze the workings of these alternatives and design them carefully, we may end up with a different, but perhaps no less blunt, set of assessment instruments. . . . As with any form of assessment, the familiar, difficult, and nasty issues of efficiency, equity, and evidence persist. Whereas there is considerable criticism of the approaches taken by standardized tests, as yet we have no such critical tradition for new modes of assessment. And we cannot be without one.[14]

Until a mechanism or forum for such self-criticism has been established, alternative assessment cannot become a viable and enduring force for educational improvement.

3. Support from well-informed educators. If the alternative assessment movement is to succeed, it must have the support and involvement of a large and well-informed cadre of professional educators. The very nature of these assessment alternatives (and one of their major strengths) is their close connection with instruction. Thus the classroom teacher is the gatekeeper of effective alternative assessment; indeed, it would be hard to imagine a successful large-scale performance assessment taking place without the cooperation of teachers. Of course, high-stakes, multiple-choice tests also depend on teacher professionalism and cooperation; teaching to the test or other reactions to high-stakes pressure can seriously damage such assessment efforts. But with alternative assessment, lack of competent and fully committed involvement would simply kill the endeavor outright. Why? Because to be feasible, large-scale alternative assessment requires that teachers help administer and score the assessments, processes that are much more time-consuming and costly than for traditional tests. Furthermore, optimal alternative assessments should be developed at least partly by the teachers from whose curricula the instructional targets are drawn.

Of course, alternative assessment's heavy dependence on teachers would require that they be accorded the full trust and confidence of those who use the assessment data for decisions that transcend the classroom. However, this trust and confidence depends on two potentially independent aspects of teacher behavior. The first is how fairly teachers play the assessment game. In other words, will they consciously or unconsciously bias the outcomes by coaching students too well on upcoming tests? The extent of one's confidence that teachers are not skewing the results may be inversely correlated with the assessment's consequences (i.e., with how high the stakes are).

The second consideration is the teachers' competence to perform quality assessment. To a much greater degree than in traditional assessment, the quality of alternative assessments will be directly affected by how well teachers are prepared in the relevant assessment skills. And here there is real cause for concern, if Richard Stiggins is accurate in reporting that teachers and other educational practitioners are seriously lacking in "assessment literacy" (largely because teacher training programs are flawed).[15]

Good alternative assessment obviously requires a set of assessment competencies different from those needed in traditional multiple-choice testing. But *different from* does not mean *less than*. Assessment literacy, albeit with a slightly different emphasis, is essential for alternative assessment – a fact apparently lost on some who naively promote such approaches under the misconception that they do not require teachers to know very much about assessment. Scoring rubrics and criteria for performance measures will prove as challenging for most teachers as have grade-equivalent scores. It is hardly progress if we switch from misusing standardized tests to misusing portfolios. Staff development programs to guarantee "literacy" in relevant areas of assessment will be essential underpinnings to any successful alternative assessment program.

4. Technical quality and truthfulness. Most thoughtful commentators agree that, "if we want to pursue these new modes of assessment, we cannot do so on the mere conviction that they are better. We cannot use the notion of developmental accomplishments or holistic scores to excuse us from developing rigorous standards and thoughtful rules of evidence that will offer candid pictures of what students are learning."[16]

But there is little agreement about just what those standards and rules of evidence should be and, more specifically, about what technical specifications and criteria should be used to judge the quality of the assessments. Are concepts such as reliability and validity as central to performance assessments as they are to more traditional tests? Or will this movement require "the redesign or the invention of [a new] educational psychometrics capable of answering the much-changed questions of educational achievement"?[17] There are nearly as many different answers to these questions as there are educational assessment specialists who have addressed them. Some would eschew traditional concepts of reliability and validity in judging the quality of the assessment,[18] some would redefine or replace prior psychometric standards with other forms or replace common conceptions of validity and reliability with alternative touchstones of acceptability,[19] and some argue that alternative assessment will not be useful if its measures are not held to the same high technical standards demanded of existing paper-and-pencil assessments.[20]

The issue is far from simple. Thorny technical questions abound. What criteria should be used to judge the assessments?[21] Does an assessment portray accurately all the student's abilities that are relevant to the assessment task? Can one generalize satisfactorily from specific performance assessment tasks to the broader domain of achievement needs? When students show that they can complete a specific hands-on science project, does that demonstrate that they can "do" science, do science projects of that type, or do only that particular science project? Is performance task-dependent or generalizable from task to task? If task-dependent, how many tasks must students perform before one can generalize?[22] How can assessment bias that has plagued traditional tests be kept from operating in alternative assessments that allow more subjectivity? What evidence of validity will be required – or possible – if high-stakes performance assessments meet with legal challenges from those who perform poorly on such measures? What degree of interrater reliability should be required of scorers and judges of student portfolios? Or is that even a relevant question? And these questions only scratch the surface.

The crux of the matter is whether or not the alternative assessment movement will be able to show that its assessments accurately reflect a student's true ability in significant areas of behavior that are relevant to adult life. Whether called reliability, validity, or even "isomorphism" (the degree to which the information produced by the measure bears a one-to-one correspondence to reality), some evidence that the technical quality of the assessment is good enough to yield a truthful picture of student abilities is essential. To succeed, alternative assessment must show that its tasks and measures are authentic (not merely authentic-looking) assessment. Otherwise, the promise it holds for improving teaching and learning will go unfulfilled.

5. Standardization of assessment judgments. Some proponents of alternative assessment are excited by its potential to allow flexible, diverse assessment that is tailored to the individual student. Dennie Wolf and her colleagues have argued persuasively that scoring rubrics for performance assessments, portfolios, and exhibitions often assume erroneously that all students progress from novice to expert along the same unidimensional scale. They predict that, "as we move to different modes of assessment, the contest between idealized, universal descriptions of progress and differentiated but potentially divisive rubrics will be fierce."[23] They make a convincing case that insistence on uniform standards would make a mockery of the important and time-honored role that educators' clinical judgments and diversity of opinion have played.

Yet others are quick to note that insisting on such diversity, however ideal, could easily undermine the alternative assessment movement by rendering its results too variable to support the comparisons that governing boards, legislators, and the public are demanding. It would be rather optimistic, if not naive, to assume that the clamor for accountability would be stilled simply by informing school patrons and key decision makers that alternative assessment is not intended to support such comparisons. How to standardize criteria and performance levels sufficiently to support necessary comparisons without causing them to lose the power and richness of assessment tailored to the student's needs and achievements remains a daunting issue.

Gene Maeroff has addressed this issue in his excellent analysis of the alternative assessment effort in Rhode Island.

> Furthermore, there must be standardization of some sort, as Rhode Island hopes to achieve. Otherwise, there is no way to put the findings of an assessment in context. Even in Kentucky, which by 1995 is to have the first statewide assessment system that is completely based on performance, there is anguish over how to meet the state board's mandate that there be a way of comparing Kentucky students with those in other states. . . . And the work doesn't stop with declaring, for example, that students will submit portfolios. What should be in the portfolios? What should students be asking about the contents of their portfolios? How can some element of standardization be lent to the process so that one student's portfolio may be compared with another's? Putting less emphasis on comparisons is fine, but at some point a child and his parents have a right to know whether the child's progress is reasonable for his or her age and experience.[24]

Resolving how much standardization to introduce in alternative assessments is a key issue for the future of this movement – especially so if alternative assessments are to be used to support high-stakes decisions.

6. Ability to assess complex thinking skills. One of the key reasons for promoting alternative assessment is the claim that it can measure complex, higher-order abilities that are difficult, if not impossible, to assess with traditional measures.[25] Although there are examples of well-developed multiple-choice tests – such as the Metropolitan Achievement Test, Sixth Edition – that *do* assess higher-order thinking skills, even supporters of such tests are unlikely to argue that measuring higher-order skills is a particular strength of this type of assessment. Yet this capability is widely thought to be the signature of alternative assessment, and analyses of research data and surveys of professional educators' opinions concerning the relative utility of direct assessment versus objective tests seem to bear this out.[26]

Given recent trends, alternative assessment is unlikely to have the luxury of a decade in which to mature before being judged.

But do alternative modes of assessment necessarily require the use of more complex cognitive processes by students? Can we be assured that we are measuring reasoning ability, problem-solving skills, or other higher-order skills just because we use some form of performance assessment? Obviously not, if one recognizes that students can memorize the formulas for calculus derivatives or the steps in geometry proofs without understanding the underlying concepts. As Robert Linn and his colleagues remind us, "The construction of an open-ended proof of a theorem in geometry can be a cognitively complex task or simply the display of a memorized sequence of responses to a particular problem, depending on the novelty of the task and the prior experience of the learner."[27]

If alternative assessment is to develop its full potential for measuring higher-order skills, great care must be taken to select and present assessment tasks in ways that require students to use – and to show – complex thinking skills in their responses. Proponents of alternative assessment cannot *assume* that students are using such skills just because they are performing a hands-on task.

7. Acceptability to stakeholders. The earlier discussion of "standardization of assessment judgments" hinted at the critical issue of the extent to which this movement proves acceptable to education's key stakeholders – legislators, school boards, parents, teachers, students, and associations of professional educators, to name only a few. In attempting to persuade stakeholders of the importance and usefulness of alternative assessment, educators are in a position not unlike that described by football coach Knute Rockne with regard to a passing attack: "There are three things that can happen when you throw a forward pass, and two of them are bad." Similarly, efforts to persuade education's stakeholders of the usefulness of alternative assessment can be met by any of three reactions: 1) the public supports the implementation of alternative assessment programs that subsequently *succeed*, 2) the public supports the implementation of alternative assessment programs that subsequently *fail*, or 3) the public rejects alternative assessment at the outset. If stakeholders support an alternative assessment effort and if their judgment is vindicated by the success of that effort, then there is really no issue. But the other two possibilities are more troublesome.

Outright public rejection of nontraditional forms of student assessment is likely whenever accountability-oriented stakeholders perceive that these forms will not provide them with readily manageable information. With a little orientation, most boards of education can interpret test scores intelligently, whereas they will probably find it quite difficult to deal with summaries of student performance that are derived from portfolios or anecdotal records. Useful as many of these methods are for describing student performance in meaningful ways to teachers and perhaps to parents, most of these assessment methods are more difficult to summarize for large numbers of individuals. Thus it is difficult to use them to report learning outcomes for entire classes, school districts, or state systems – precisely the levels at which educational administrators, policy makers, legislators, and the public at large feel the greatest need for information. Public demand for evidence that teachers and schools are effectively educating students is increasing, and test scores are the kind of evidence the public typically finds most credible. Unless the public ceases to demand such assessment-driven accountability, proponents of alternative assessment must grapple with this simplistic view of education reform and find ways to convince stakeholders that alternative assessment can play a pivotal role in improving teaching and learning that far transcends its inability to generate simple snapshot data for decision makers.[28]

However, the most damaging possibility for alternative assessment would be if its supporters convince education's stakeholders of its high potential for educational improvement – and then it fizzles and flops. Countless earlier educational innovations have entered the scene with a huge splash, only to disappear in relatively short order without leaving an observable ripple. And here the most ardent advocates of alternative assessment may inadvertently undermine the movement. There is the danger that, in their enthusiasm, supporters of alternative assessment will raise stakeholders' expectations to unrealistic levels, thus leading to disappointment and ultimately the withdrawal of support. There is little that breeds skepticism and abandonment of causes faster than overpromising and then failing to deliver – however worthy the cause.

A key to the future of alternative assessment is the ability of its advocates to guide it along the narrow path that winds between the swamps of underselling and the pitfalls of overpromising. It will take patience to persist on that middle pathway when the public, policy makers, and many educators are clamoring for immediate solutions to critical problems in our schools. Some leading proponents of alternative assessment have suggested privately that it will be a decade before these forms of assessment are sufficiently developed and tested to allow widespread dependence on them to support educational decisions. Given the recent trends in the mandating of performance assessment by many legislative bodies and funding agencies, alternative assessment is unlikely to have the luxury of a decade in which to mature before being judged on its ability to solve some of education's thorniest problems, which themselves have had decades to develop, sometimes to gargantuan proportions.

Blaming state legislators or funding agency officials for being too hasty misses the point, for they have simply believed what they have been told by the most fervent architects of alternative assessment. What is now critical is that thoughtful proponents of nontraditional assessment help education's stakeholders to see its potential, while adjusting and refining their expectations to align them with what is appropriate for a promising but still-young movement. It may be too late in Kentucky, where the legislature has mandated a statewide assessment system based completely on performance assessment by 1995. (It can only be hoped that this fledgling effort proves to be precocious and meets with at least modest success; if not, the entire alternative assessment movement may be seriously damaged by a high-profile failure.) Whenever possible, however, both promises to and expectations of stakeholders should be tempered to allow time to develop, pilot, and modify nontraditional forms of assessment before launching this movement as the flagship of education reform. Even then, as Cizek reminds us, it would seem wise to remember that "performance assessment does have potential to make a positive contribution to reform efforts by providing unique information about student ability . . . [but] it should not be promoted . . . as *the* cure for what ails us."[29]

8. Appropriateness for high-stakes assessment. It is too early to be certain about the appropriateness of alternative assessment in high-stakes environments, but it is not too early to recognize this issue as pivotal. To begin with, much of the argument for alternative assessment has focused on the susceptibility of traditional tests to the pressure and resulting corruption caused by basing high-stakes decisions on test results. Little will be gained if similar pressure is switched from multiple-choice tests to performance assessments and "teaching to the test" is simply replaced by "teaching to the assessment." Memorizing geometry proofs likely to appear on a performance assessment is not the only instance in which practice on specific tasks leads to apparent proficiency but fails to generalize to other, similar tasks.[30] Although alternative assessment measures should, by their very nature, be less easily corrupted than objective tests, their credibility in high-stakes settings will remain a matter of speculation until considerably more evidence on this topic is available.

In the meantime, there are three unknowns about alternative assessments that raise questions about their usefulness in high-stakes settings. First, does alternative assessment provide sufficient standardization to defend high-stakes decisions based on such measures? Second, will ethnic minorities score better on alternative assessments than on traditional measures – or more poorly, as now appears quite possible?[31] Third, will the inevitable legal challenges aimed at high-stakes decisions based on alternative assessments be more difficult to defend because the validity of such measures may be less apparent to psychometricians and thus less convincing to the courts? Until questions such as these are answered, it is unclear whether or not alternative assessments can serve the needs of assessment well in high-stakes settings.

John O'Neil summarizes the views of several commentators who caution that it would be wise to develop more expertise with alternative assessment methods before plunging ahead in situations in which the consequences are high.[32] In the interim, it would seem prudent to develop and test alternative assessment approaches in low-stakes settings where they can serve needs for better classroom assessment. More must be learned about how to select worthy and representative tasks, how to set criterion levels and standardize scoring enough (but not too much), how the assessment results can be used in improving instruction and stimulating reform, how to provide professional development to enable educators to use nontraditional assessment effectively, and how to obtain and maintain stakeholders' permission for the use of alternative assessments. With that foundation, the effort to consider the use of alternative assessments in high-stakes settings would seem more likely to succeed.

9. Feasibility. One of the most frequently debated issues is whether or not alternative assessment is feasible for large-scale efforts to assess student performance. No one, whether proponent or opponent of nontraditional assessment, claims that alternative assessments are as inexpensive, efficient, or quick as machine scoring of multiple-choice answer sheets. Obviously, scoring students' constructed responses to performance assessment tasks (e.g., writing samples or art portfolios) would be enormously expensive. The labor intensity of scoring and the need to observe performance over extended periods are primarily responsible for the high costs of performance assessments reported by some assessment specialists. Lorrie Shepard, for example, has reported that the recent fourth-grade math performance assessment conducted by the National Assessment of Educational Progress cost approximately $150 per pupil tested. George Madaus has reported estimates that using performance assessment in most subjects in American schools would cost between $2.5 and $3 billion annually. And Desmond Nuttall has pointed out that, despite several advantages of the broad use of performance assessment in England, its financial and personnel costs are so immense as to threaten its continuation.[33]

Of course, cost should not be the only criterion, as supporters of alternative assessment are quick to point out. The more important criterion should be the costs versus the benefits. Does alternative assessment produce sufficiently greater benefits to justify its increased costs? Are there benefits that are so intertwined with teaching and learning that it is naive to think they can be separated out by traditional cost-benefit analyses? No definitive answers can be given to such questions until considerably more research has addressed these issues. In the meantime, it seems reasonable to suggest that no assessment method will ever be rated highly on its ratio of benefits to costs if it is unaffordable in the first place. (See James Popham's article, "Circumventing the High Costs of Authentic Assessment," page 470, this *Kappan*.)

Numerous suggestions have been offered to make alternative assessment more feasible beyond the individual classroom. Perhaps the most common is the use of sampling, where both the students and the items (tasks) to be assessed are selected by precise scientific methods. The result might be a system in which only a limited number of schools in a district or state would be sampled, only a small proportion of the students within them would be selected, and each student in the chosen sample would receive only a sample of the assessment tasks. Obviously, such a system would be far less costly to operate and, therefore, much more feasible. By administering exemplary assessment measures in key subjects to selected samples of students, workable and useful assessment systems could emerge.

For this strategy to succeed, however, school boards and legislatures would need to be convinced that they ought to test less and be satisfied with very different kinds of reports on student performance – reports based on much more in-depth assessment of the performance of far fewer students, possibly at far fewer grade levels. If the data were used for high-stakes decisions, educators would probably need to be convinced that such decisions could be justified on the basis of such "low-proportion" sampling of students and assessment tasks. Such assurance could be given only if 1) a rich and defensible array of learner outcomes were reflected in the universe from which the assessment tasks were sampled, 2) the sample of students were selected so as to be truly representative, and 3) the assessment of each student accurately reflected the student's true ability in the task presented. Whether or not these three conditions can be met within the available resources of states and school districts is still an unresolved issue. Only time and experience will tell whether or not such a sampling approach will make alternative assessment affordable beyond the classroom and, if so, whether such a sampling approach is acceptable to educators and key education policy makers.

10. Continuity and integration across educational systems. If it is doubtful whether a single assessment can – or should – be used to satisfy both instructional and accountability purposes, then why not use two separate assessments? And if traditional tests can more efficiently and inexpensively collect assessment data from large groups of students, then why not use them in appraising and reporting on student performance at national, state, district, and possibly school levels? Similarly, if alternative assessment is linked closely to teaching and learning and is more feasible when closely integrated with the classroom curriculum, then why not use such assessment methods within the classroom? Why not use two "parallel" systems rather than force either to be used in an environment to which it is not suited? Such questions have led some schools and districts to propose a two-layer assessment system, in which the first layer consists of performance assessment used to enrich classroom assessment and the second depends on standardized, multiple-choice tests used to assess the performance level of larger groups of students for reporting average achievement levels for the state, the district, and the school.

Although such an approach may appear to some to be a case of having one's assessment cake and eating it too, it poses some difficulty. Such a bifurcated system would make classroom (and possibly school) assessment dependent on intensive sampling of performance assessment and district- or state-level assessment dependent on standardized testing programs. This would not only create a dualistic view of student attainment, but would also effectively preclude teachers from having much influence on the high-stakes assessments (beyond their often token involvement as "teacher representative" on the district or state assessment committee). Data from standardized tests would continue to be irrelevant to most classroom decisions, and the potential richness of data from alternative assessments would not extend beyond the local level to enhance the information available to those who make high-stakes decisions. The result would be a curious discontinuity between "local assessment" information and assessment information for larger units. In some ways this would formalize the present situation, in which classroom teachers use their own methods of assessing student learning (most often some type of performance testing), while high-stakes decisions are based on multiple-choice tests. Not many commentators argue that this disjointed approach to educational assessment is optimal.

So, despite the problems posed by the use of matrix sampling and other challenges discussed earlier, it would seem that the alternative assessment movement must develop or refine strategies that will link assessment for accountability more effectively to assessment for individual student diagnosis and prescription.

11. Use of technology. The role that technology will play in alternative assessment is still largely unresolved. Although only technology enthusiasts are sanguine about technology's ability to resolve complex educational problems single-handedly, it would seem that better use of technology should be particularly helpful in solving some of the major challenges to alternative assessment discussed above. For example, the use of computers would seem an obvious way to simplify now labor-intensive techniques and make them feasible. Midian Kurland's "Text Browser" is a promising effort to use a network system to support highly individualized instruction and assessment, including portfolio management and scoring.[34] Computerized adaptive testing is viewed by some as so advantageous that such tests will eclipse most paper-and-pencil tests within this decade.[35] And videotapes and audiotapes, already the core of some alternative assessment efforts, will doubtless become more useful as those technologies advance.

One caution must be added, however. Advances in technology will not automatically be used to improve alternative assessment. In commenting on the impact of computer technology on large-scale assessment programs, Walter Haney and George Madaus note that "the major impact of computer technology on testing has been in the creation of more efficient multiple-choice tests rather than in the exploitation of computer technology to create real alternatives to standardized multiple-choice tests."[36] How to harness technology to make alternative assessment less labor intensive is an important issue that will directly affect the future of alternative assessment.

12. Avoidance of monopolies. There is little sense in "reinventing the wheel" by having every school attempt to develop all of its own performance assessment tools. As far back as 1975 the U.S. Office of Education had funded assessment and evaluation specialists in establishing a national clearinghouse for applied performance measures.[37] As has been the fate of so many government-funded programs, the funding for this one was terminated just as use of the clearinghouse was expanding, but this excursion into cataloging and exchanging fugitive performance measures was nonetheless a valuable resource for schools and other agencies that wished to use performance tests but lacked the time or expertise to develop their own. In view of today's greater interest in such measures, resurrecting this approach could provide an even more important service.

There is also wisdom in drawing on existing expertise to develop high-quality performance assessments, such as some already produced by such testing firms as the Educational Testing Service, American College Testing, and the Psychological Corporation (e.g., the battery of performance assessments contained in the College Outcome Measures Project). But there is also an element of risk if large testing companies are allowed to become the primary source of instruments for alternative assessment. Sole dependence on measures developed in isolation from local curricula would clearly undermine one of alternative assessment's greatest strengths: the integration of instruction and assessment.

While testing companies can and should provide well-developed, "common-denominator" performance assessments that would serve some assessment needs in the school, thoughtful and energetic efforts will be needed to develop locally relevant assessment alternatives as the core of any alternative assessment effort. Failure to do so would extend the testing companies' current monopoly on standardized multiple-choice tests to standardized alternative assessments. Much thought is needed about how to capitalize on the considerable assessment expertise of existing testing corporations (and of experts in state agencies, universities, and the like) without abandoning to them all responsibility for developing local assessment measures.

UNTIL THE ISSUES ARE RESOLVED

The dozen issues discussed above may not reflect all of the conceptual, technical, practical, or political challenges that the alternative assessment movement must confront as it progresses. Indeed, Wolf and her colleagues have acknowledged these challenges to be numerous and sobering – even as they underscore the urgency of attempting to meet them. However, the issues I have raised should be sufficient to show that there is much work ahead. I hope that assessment specialists and other educators will focus on these and other emerging issues so that the full potential of alternative assessment can be determined and, eventually, realized. Until then, the extent to which alternative assessment can bring improvement to American education on a broad scale will be unknown, and the claims of those who advocate and those who oppose this movement will reflect as much faith as science.

In the meantime, what stance should educators take? In my view, schools should be quick to capitalize on alternative assessment, whenever appropriate, for it seems clear that it offers much at the local level. District, state, and national assessment efforts should follow the lead of the National Assessment of Educational Progress in using performance assessment tasks whenever feasible, especially in low-stakes settings that are more accommodating of experimentation. Educators should help to shape the future direction of alternative assessment by gaining experience with it and by continuing only those practices that work well. When alternative assessment proves to be unhelpful, pressure to use it should be ignored. Finally, educators should be as slow to accept claims that alternative assessment is the panacea for all of education's ills as they are to believe critics who portray the pimples of alternative assessment as terminal acne.

Such an open-minded, neutral stance will not be easy to adopt, especially in a field in which decisions about new approaches are more likely to be based on the passion and persuasive abilities of supporters or critics than on any solid empirical foundation. But a careful analysis of the potential of alternative assessment will require attention to the questions raised above and perhaps to others yet unidentified. Unless these issues are thoughtfully addressed and resolved, today's interest and confidence in alternative assessment may well ebb, like many other assessment trends that have receded, leaving behind little lasting impact.

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1. See, for example, Joan Boykoff Baron, "Performance Testing in Connecticut," *Educational Leadership*, April 1989, p. 8; and Ed Roeber and Peggy Dutcher, "Michigan's Innovative Assessment of Reading," *Educational Leadership*, April 1989, pp. 64-69.

2. Joan Herman, speech delivered at a meeting of a Consortium on Expanded Assessment, held at the ASCD-sponsored miniconference, titled "Pathways for More Thoughtful Assessment," San Diego, November 1991. According to Herman, 25 states have passed or are considering passing legislation in this area.

3. See, for example, Gregory J. Cizek, "Innovation or Enervation? Performance Assessment in Perspective," *Phi Delta Kappan*, May 1991, pp. 695-99; Grant Wiggins, "A Response to Cizek," *Phi Delta Kappan*, May 1991, pp. 700-703; and Gregory J. Cizek, "Confusion Effusion: A Rejoinder to Wiggins," *Phi Delta Kappan*, October 1991, pp. 150-53.

4. Many writers would include the label "portfolio assessment" in this list, but it refers more accurately to one of several ways in which alternative forms of assessment data can be recorded and reviewed. Thus the phrase is not a descriptor of this general *type* of assessment, but rather the name of one of its *tools*. Ron Brandt, editor of *Educational Leadership*, highlighted this distinction nicely by treating "Using Performance Assessment" as a section separate from "Using Portfolios" in the May 1992 special issue of that journal on performance assessment.

5. Jay J. McTighe and Steven Ferrara, "A Process for Planning More Thoughtful Classroom Assessment," in Arthur Costa and James Bellanca, eds., *Mind Matters* (Palatine, Ill.: Skylight Publishing, forthcoming).

6. Lorrie A. Shepard, "Will National Tests Improve Student Learning?," *Phi Delta Kappan*, November 1991, p. 233.

7. John J. Cannell, "National Norm-Referenced Elementary Achievement Testing in America's Public Schools: How All Fifty States Are Above the National Average," *Educational Measurement: Issues and Practice*, vol. 7, 1988, pp. 5-9.

8. National Center for Education Statistics, *Digest of Education Statistics* (Washington, D.C.: U.S. Department of Education, 1987).

9. Blaine R. Worthen and Vicki Spandel, "Putting the Standardized Test Debate in Perspective," *Educational Leadership*, February 1991, pp. 65-69.

10. For a more complete discussion of the advantages and disadvantages of alternative assessments, see Gene I. Maeroff, "Assessing Alternative Assessment," *Phi Delta Kappan*, December 1991, pp. 272-81; and Blaine R. Worthen, Walter R. Borg, and Karl R. White, *Measurement and Evaluation in the Schools: A Practical Guide* (New York: Longman, 1993).

11. Carol A. Meyer, "What's the Difference Between *Authentic* and *Performance* Assessment?," *Educational Leadership*, May 1992, pp. 39-40. Meyer's effort to distinguish between these terms is long overdue. It makes a welcome beginning, though it barely scratches the surface of the problem.

12. Herman, op. cit.

13. Richard Nicoll, "Putting It in Perspective," *Thrust for Educational Leadership*, October 1991, p. 17.

14. Dennie Wolf et al., "To Use Their Minds Well: Investigating New Forms of Student Assessment," in Gerald Grant, ed., *Review of Research in Education* (Washington, D.C.: American Educational Research Association, 1991), p. 60.

15. Richard J. Stiggins, "Assessment Literacy," *Phi Delta Kappan*, March 1991, pp. 534-39.

16. Wolf et al., p. 62.

17. Ibid., p. 63.

18. Gerald W. Bracey, "Measurement-Integrated Instruction and Instruction-Integrated Measurement: Two of a Kind," paper presented at the Academy for the Colorado Association of School Executives, Denver, April 1990.

19. Wiggins, op. cit.

20. Cizek, "Confusion Effusion."

21. Grant Wiggins, "Creating Tests Worth Taking," *Educational Leadership*, May 1992, pp. 26-33.

22. Richard J. Shavelson and Gail P. Baxter, "What We've Learned About Assessing Hands-On Science," *Educational Leadership*, May 1992, pp. 20-25. Shavelson and Baxter reported that students must complete between 10 and 20 hands-on science tasks before an accurate picture of their achievement in science can be obtained.

23. Wolf et al., p. 63.

24. Maeroff, pp. 275-76.

25. See, for example, Gerald W. Bracey, "The $150 Million Redundancy," *Phi Delta Kappan*, May 1989, pp. 698-702.

26. See Charles Suhor, "Objective Tests and Writing Samples: How Do They Affect Instruction in Composition?," *Phi Delta Kappan*, May 1985, pp. 635-39.

27. Robert L. Linn, Eva L. Baker, and Stephen B. Dunbar, "Complex Performance-Based Assessment: Expectations and Validation Criteria," *Educational Researcher*, November 1991, p. 19.

28. Dennie Palmer Wolf, Paul G. LeMahieu, and JoAnne Eresh, "Good Measure: Assessment as a Tool for Educational Reform," *Educational Leadership*, May 1992, pp. 8-13. The authors make the important point that the concerns of outside audiences have unduly influenced assessment – sometimes to the exclusion of important *internal* accountability, where they see alternative assessment playing a key role.

29. Cizek, "Confusion Effusion," p. 153.

30. Linn, Baker, and Dunbar, op. cit.

31. Linda Darling-Hammond, "The Implications of Testing Policy for Quality and Equality," *Phi Delta Kappan*, November 1991, pp. 220-25.

32. John O'Neil, "Putting Performance Assessment to the Test," *Educational Leadership*, May 1992, pp. 14-19.

33. Shepard, op. cit.; George F. Madaus, "The Effects of Important Tests on Students: Implications for a National Examination System," *Phi Delta Kappan*, November 1991, pp. 226-31; and Desmond L. Nuttall, "Performance Assessment: The Message from England," *Educational Leadership*, May 1992, pp. 54-57.

34. D. Midian Kurland, "Text Browser: A Computer-Based Tool for Managing, Analyzing, and Assessing Student Writing Portfolios," paper presented at the annual meeting of the American Educational Research Association, Chicago, 1991.

35. James R. McBride, "Computerized Adaptive Testing," *Educational Leadership*, October 1985, pp. 25-28.

36. Walter Haney and George Madaus, "Searching for Alternatives to Standardized Tests: Whys, Whats, and Whithers," *Phi Delta Kappan*, May 1989, p. 686.

37. James R. Sanders and Thomas Sachse, eds., *Problems and Potentials of Applied Performance Testing: Proceedings of the National Conference on the Future of Applied Performance Testing* (Portland, Ore.: Northwest Regional Educational Laboratory, 1975).

BEST COPY AVAILABLE

Professional Development

Teaching and Learning

New goals for student learning by themselves are not enough. Helping students meet challenging standards requires new ways of teaching—teaching, learning, and schooling must be reinvented.

Goals 2000 plans can help to foster and support activities and programs that help to reinvent teaching and learning.

The schools can't do the whole task alone: states and districts must support them in their endeavors and parents, educators, students, business, labor, and the community need to be active partners in the reform efforts.

Americans overwhelmingly support the notion of setting higher standards and goals for schools, including higher standards for every student, especially those students at risk of educational failure. States may want to use voluntary national standards as benchmarks or guideposts as they develop their own high standards for what students should know and be able to do. They will be most likely to improve teaching and learning if they align curriculum, instruction, professional development, student assessment, and other elements of schooling with these standards.

It is not possible to do all this piecemeal; systemic reform is required to align the necessary elements with new standards. Effective systemic reform has the following elements:

- Establishment of high standards to challenge all students;
- Alignment of the key elements of the educational system with those standards; and
- Provision of sufficient flexibility and authority to local jurisdictions to determine and implement an educational program that is best for each student.

The standards must be set at high, challenging levels for *every* student. What Americans must know and be able to do in the 21st century will differ fundamentally from what students are being asked to know and be able to do in today's schools. Students need the basics—and more. They need to be able to use basic information to solve new problems: problems that we can't imagine today. We need new ways of teaching and learning, particularly for students at risk of academic failure.

Under traditional approaches to instruction, students are required to master basic skills such as phonetic decoding and arithmetical operations before they are exposed to "higher-order thinking" where students must interpret, analyze, and evaluate information to solve real problems. As a result, students who do not readily master the lower level basic skills spend inordinate amounts of time repeating their efforts and are shortchanged in their exposure to more challenging curriculum and in their opportunity to develop problem-solving skills. Studies conducted by cognitive scientists have demonstrated that learning need not progress in this slow lockstep fashion. Research in reading, writing, and mathematics clearly shows that children can learn more complex skills earlier through work that is

This paper is offered to stimulate discussion and thinking in one of the key components to be included in Goals 2000: Educate America Act plans. We welcome revisions and suggestions for examples of effective state and local practices for future editions. Please send your comments to: Goals 2000; U.S. Department of Education; 400 Maryland Avenue, SW; Washington, DC 20202.

more interesting and motivating than through constant drill on the basics. And students learn the basics as they are learning how to use their knowledge in meaningful ways.

What are the new directions in teaching and learning?

"Understanding" is central to the new view of teaching and learning. The view of the students as mere absorbers of knowledge has shifted to one of students as users and constructors of knowledge. This view—called the "constructivist approach"—means that students must learn to relate concepts, theories, explanation, and procedures, and then integrate new knowledge with what they already know. To do all this, students must do more than just memorize facts: they must think about what they are learning, incorporate new knowledge with old, and apply what they are learning to real-life situations. Learning basic skills is important but doesn't automatically translate into understanding. Students must develop skills such as reading comprehension, written composition, scientific experimentation, and mathematical reasoning.

New approaches to learning require new approaches to teaching. Teachers need to learn how to implement these new concepts to promote student learning. Teachers must develop new skills and new teaching strategies. Most school districts, however, give in-service training a low priority; hence, teachers do not have the time or the resources they need to learn and practice new skills and strategies. Further, the teacher training that is offered too often reinforces old concepts rather than reflecting new knowledge.

In addition to learning new skills and strategies, teachers need time to understand the concepts behind them. Teachers also need feedback on how well they are implementing their new skills and strategies in their classrooms. Finally, other educators, such as principals and administrators, need better professional development. All of them need a better understanding of how to dramatically improve teaching and learning . . . in a classroom, in a school, across a community, and across a state.

Why are new directions in teaching and learning important in the Goals 2000 plan?

A basic principle of Goals 2000 is higher expectations for every student. High standards and enriched course content improve student performance. We know that all students can learn more than we now ask of them. In too many American schools, few students are given challenging coursework. When we expect more of students, they work harder and achieve more. Content-rich and challenging instruction is essential for all children, at all stages of development.

New goals for student learning and new school curricula by themselves, however, are not enough to transform teaching and learning. Helping students meet challenging standards requires new ways of teaching. Educators must change not only their practices but also their thinking—their assumptions about what it means to know something and their ideas about what it means to be an educator. This is no small task; in essence, teaching, learning, and schooling must be reinvented.

Goals 2000 plans can help to foster and support activities and programs that help to reinvent teaching and learning. Teacher preparation and professional development programs need to be overhauled so that school personnel will have the tools they need to do their jobs. The schools can't do the whole task alone: states and districts must support them in their endeavors and parents, educators, students, business, labor, and the community need to be active partners in the reform efforts.

What are some examples of promising strategies and programs?

Professional development for educators is an integral component of affecting improved teaching practices that better promote learning. As with curricula, professional development may take a number of different forms and still achieve common goals. Some examples of successful professional development programs and the teaching procedures they promote follow.

The Teachers Academy for Mathematics and Science works with Chicago's elementary schools to train all teachers in hands-on problem-solving approaches to instruction in mathematics, science, and technology. The Academy's comprehensive school development process has four parallel strands:

1. Organizational Development and Technical Assistance focuses on how to improve the quality of the instructional program through team building and decisionmaking about standards, curriculum, instructional outcomes, and assessment.
2. Staff Development focuses on the development of content knowledge, pedagogical practices, and curriculum planning; it includes instruction in classroom coaching, modeling, and implementation of new practices.
3. School Community Partnership Development focuses on the encouragement of parental involvement in the instructional program of the school, as well as a general increase in the public understanding of science.
4. Network Development focuses on the needs of teachers to keep learning, to interact with other teachers, and to identify resources to help them enrich the curriculum and expand their repertoire of activities.

The Academy's Resource Center contains a library, classrooms, and laboratory work centers. It sponsors conferences, seminars, and other outreach programs. It also is the home of a coordinated electronic network that allows teachers to communicate, through E-mail, with other science and mathematics teachers with similar interests.

The Academy's staff development program has two components:

1. *Teaching Integrated Math and Science* (TIMS) is a K-8 curriculum that concentrates on fundamental concepts central to all science. It assumes that mathematics should be taught in a context, such as science, to give it significance and reality. TIMS curriculum concentrates on logical thought processes and simple concepts useful in the real world, in place of the rapid rote learning common today in many elementary school curricula.
2. *MathTools* is a K-6 program that concentrates on content and methodologies that introduce students to mathematical concepts, principles, and relationships rather than rote computational skills. It is intended to help teachers increase mathematical instruction time; teach mathematics as opposed to addition, subtraction, and place value only; introduce abstract concepts using concrete materials; integrate mathematics into the entire day; and use calculators to teach concepts and problem solving.

The **Florida Institute for Art Education** works with school districts to develop an approach to teaching called "Discipline-Based Art Education" through staff development and curriculum implementation. School district teams of principals, classroom teachers, art teachers, board members, and curriculum consultants attend an intensive Summer Staff Development session where they are immersed in art. They hear experts in each of the disciplines, participate in discussions and workshops, participate in demonstration teaching, and examine instructional materials. They visit museums and galleries and meet artists in their studios to learn about the creative process.

The sessions help educators to look at art in a new way—how it relates to learning. The basic concept is that systemic instruction based on written, sequential curriculum gives students opportunities to develop skills of critical thinking, problem-solving, interpretation, judgement, and a unique perspective on history and culture. Discipline-Based Art Education expands on traditional art teaching, which focuses primarily on making art, to integrating content and theory from four disciplines:

1. *Criticism*—analyzing a piece of art;
2. *History*—understanding art as a part of culture;
3. *Aesthetics*—exploring the nature and value of art; and
4. *Production*—developing skills to express ideas and images.

The focus of the staff development is on thematic ideas in art; scanning, an entry level method to the four disciplines; extended experiences in descriptive writing, poetry, drama, and music; and connections to the total curriculum. The Institute provides strong follow-up support services through site visits to each district by classroom art consultants who observe, advise, and act as mentors to teachers.

The **Iowa Chautaqua Program** (ICP) is an in-service program for K-12 science teachers that begins with a three-week summer institute followed by workshops and support throughout the year. Lead teachers, recruited from among the outstanding graduates of previous ICP sessions to help with the teacher workshops, form a key component of the program's success. University of Iowa staff, along with scientists from local colleges, universities, and industry, also belong to the instructional team.

The ICP trains teachers to develop and assess new instructional materials based on the Science/Technology/Society (STS) approach to science teaching. Developed by the National Science Teachers Association, the STS approach engages students in identifying problems with local interest and impact, asks them to seek out information that can be applied to solve these problems, explores the impact of the problems on individual students, and emphasizes career awareness and citizenship roles as students attempt to resolve the issues they have identified.

In the summer institute, teachers learn the STS approach in four instructional blocks: (1) "Questioning," in which teachers identify a real-world problem; (2) "Explaining," in which they generate possible solutions; (3) "Analyzing," in which they select among the solutions; and (4) "Taking Action," in which they act upon their findings. Teachers then develop lesson plans for their classrooms.

During the following year, the teachers test their lesson plans and later develop, present, and assess longer STS lesson plans. ICP participants meet to share and analyze their experiences with the pilot units, to plan assessments of student learning, and to plan for even more extensive changes in school programs and teaching strategies. Teachers receive support through a series of communications with central staff, lead teachers, scientists, and fellow participants, including a newsletter, special memoranda, monthly telephone contacts, and school/classroom visits.

Where can I get more information?

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University of Iowa
Iowa City, IA 52242
(319) 335-0805

ACCESS ERIC
1600 Research Boulevard
Rockville, MD 20850
(800) LET-ERIC [536-3742]

ERIC Clearinghouse on Educational Management
University of Oregon
1787 Agate Street
Eugene, OR 97403-5207
(503) 346-5043

ERIC Clearinghouse on Urban Education
Institute for Urban and Minority Education
Main Hall, Room 303
525 West 120th Street, Box 40
Teachers College, Columbia University
New York, NY 10027-9987
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National Diffusion Network (NDN)
Office of Educational Research and Improvement
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555 New Jersey Avenue, NW
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FORUM

A Paradigm Shift in Staff Development

by Dennis Sparks
Executive Director

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During the past 20 years it has gone by many names — inservice education, staff development, professional development, and human resource development. But whatever it was called, it too often was essentially the same thing — educators (usually teachers) sitting relatively passively while an "expert" "exposed" them to new ideas or "trained" them in new practices. The success of this endeavor was typically judged by a "happiness quotient" that measured participants' satisfaction with the experience and their assessment regarding its usefulness in their work.

Fortunately, all of this is at long last being swept away by irresistible forces that are currently at work in education. History teaches us the power of a transforming idea, an alteration in world view so profound that all that follows is changed forever. Such a paradigm shift is now rapidly transforming the discipline of "staff development." (I will use this term throughout because our professional language has not yet caught up with the paradigm shift that is described below)

Three powerful ideas are currently altering the shape of this nation's schools and the "staff development" that occurs within them. The first is the notion of *results-driven education* which judges success not by the courses students take or the grades they receive, but by what they actually know and can do as a result of their time in school. Results-driven education will require that teachers and administrators alter their attitudes (e.g., from grades should be based on the bell curve to the belief that virtually all students can acquire the school's valued outcomes provided they are given sufficient time and appropriate instruction) and acquire new instructional knowledge and skills.

Results-driven education for students will require results-driven staff development for educators. Staff development's success will be judged primarily not by how many teachers and administrators participate in staff development programs or how they perceive its value, but by whether it alters instructional behavior in a way that benefits students. The goal of staff development and other improvement efforts is becoming improved performance — improved performance on the part of students, staff, and the organization.

The second transforming idea is that of systems thinking, which recognizes the complex, interdependent interrelationships among the various parts of the system. When the parts of a system come together they form something that is bigger and more complex than those individual parts. "Systems thinkers" are individuals who are able to see how these parts constantly influence one another in ways which can support or hinder improvement efforts. Because educational leaders typically have not thought systemically, reform has been approached in a piecemeal fashion.

An important aspect of systems thinking is that changes in one part of the system — even relatively minor changes — can have significant effects on other parts of the system, either positively or negatively. To complicate the situation, these effects may not become obvious for months or even years, which may lead observers to miss the link between the two events. For instance, graduation requirements may be increased, teachers may be trained in some new process, or decision-making decentralized, with little thought given to how these changes influence other parts of the system. As a result, "improvements" in one area may produce unintended consequences in another part of the system (e.g., increasing graduation requirements in science without appropriate changes in assessment, curriculum, and instructional methods may increase the dropout rate).

To address this issue, Peter Senge, author of *The Fifth Discipline*, encourages organizational leaders to identify points of high leverage in the system — points that he refers to as "trim tabs." Change introduced into these areas can have a positive ripple effect throughout the organization (e.g., a change in assessment strategies may have a significant effect on curriculum and instruction).

The third powerful idea is constructivism. Constructivists believe that learners build knowledge structures rather than merely receive them from teachers. In this view knowledge is not simply transmitted from teacher to student, but instead constructed in the mind of the learner. From a constructivist perspective it is critical that teachers model appropriate behavior, guide student activities, and provide various forms of examples rather than use common instructional practices that emphasize telling and directing.

Constructivist teaching will be best learned through constructivist staff development. Rather than receiving "knowledge" from "experts" in training sessions, teachers and administrators will collaborate with peers, researchers, and their own students to make sense of the teaching/learning process in their own contexts. Staff development from a constructivist perspective will include activities such as action research, conversations with peers about the beliefs and assumptions that guide their instruction, and reflective practices like journal keeping — activities which many educators may not even view as staff development.

Results-driven education, systems thinking, and constructivism are producing profound changes in how staff development is conceived and implemented. Some of the most important of these changes are:

- *From individual development to individual development and organization development.* Too often we have expected dramatic changes in schools based solely on staff development programs intended to help individual teachers and administrators do their jobs more effectively. An important lesson from the past few years, however, has been that improvements in individual performance alone are insufficient to produce the results we desire.

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It is now clear that success for all students depends upon both the learning of individual school employees and improvements in the capacity of the organization to solve problems and renew itself. While the knowledge, skills, and attitudes of individuals must continually be addressed, quality improvement expert W. Edwards Deming estimates that 85% of the barriers to improvement reside in the organization's structure and processes, not in the performance of individuals. For instance, asking teachers to hold higher expectations for students within a school that tracks students pits teachers against the system in which they work. As systems thinking has taught us, unless individual learning and organizational changes are addressed simultaneously and support one another, the gains made in one area may be canceled by continuing problems in the other.

• *From fragmented, piecemeal improvement efforts to staff development driven by a clear, coherent strategic plan for the school district, each school, and for the departments that serve schools.* Educational experts such as Seymour Sarason and Michael Fullan have criticized schools for their fragmented approach to change. School improvement too often has been based on fad rather than a clear, compelling vision of the school system's future. This, in turn, has led to one-shot staff development workshops with no thought given to follow-up nor how this technique fits in with those that were taught in previous years. At its worst, teachers are asked to implement poorly understood innovations with little support and assistance, and before they are able to approach mastery, the school has moved on to another area.

An orientation to outcomes and systems thinking has led to strategic planning at the district, school, and department levels. Clear, compelling mission statements and measurable objectives expressed in terms of student outcomes give guidance to the type of staff development activities that would best serve district and school goals. In turn, district offices such as staff development and curriculum see themselves as service agencies for schools. This comprehensive approach to change makes certain that all aspects of the system (e.g., assessment, curriculum, instruction, parent involvement) are working in tandem toward a manageable set of outcomes that are valued throughout the system.

• *From district-focused to school-focused approaches to staff development.* While districtwide awareness and skill building programs sometimes have their place, more attention today is being directed at helping schools meet their improvement goals. Schools sets their goals both to assist the school system in achieving its long-term objectives and to address challenges unique to their students' needs.

School improvement efforts in which the entire staff seeks incremental annual improvement related to a set of common objectives (e.g., helping all students become better problem solvers, increasing the number of students who participate in a voluntary community service program to 100%) over a three to five year span are viewed as the key to significant reform. As a result, more learning activities are designed and implemented by school faculties, with the district's staff development department providing technical assistance and functioning as a service center to support the work of the schools.

• *From training that one attends away from the job as the primary delivery system for staff development to multiple forms of job-embedded learning.* Critics have long argued that too much of what passes as staff development is "sit and get" in which educators are passive recipients of received wisdom. Likewise, a great deal of staff development could be thought of as "go and get" because "learning" has typically meant leaving the job to attend a workshop or other event.

While well-designed training programs followed by coaching will continue to be the preferred method for the development of certain skills, school employees will also learn through such diverse means as action research, participating in study groups or small-group problem solving, observing peers, journal writing, and through involvement in improvement processes (e.g., participation in curriculum development, school improvement planning).

• *From staff developers who function primarily as trainers to those who provide consultation, planning, and facilitation services, as well as training.* Staff developers are more frequently called on today to facilitate meetings or to assist various work groups (e.g., a school faculty, the superintendent's cabinet, a school improvement team) solve problems or develop long-range plans. While staff developers will continue to provide training in instructional areas, results-driven education and systems thinking have placed teachers, administrators, and school employees in new roles (e.g., team leader, strategic planning team member) for which training in areas such as conducting effective meetings is required for their successful performance.

• *From staff development provided by one or two departments to staff development as a critical function and major responsibility performed by all administrators and teacher leaders.* Job-embedded staff development means that superintendents, assistant superintendents, curriculum supervisors, principals, and teacher leaders, among others, must see themselves as teachers of adults and view the development of others as one of their most important responsibilities. Individuals who perform these roles are increasingly being held accountable for their performance as planners and implementers of various forms of staff development.

As responsibility for staff development has been spread throughout the school system, the role of the staff development department has become even more important. Staff development departments are assisting teachers and administrators by offering training and ongoing support in acquiring the necessary knowledge and skills to assume their new responsibilities, by providing one-to-one coaching of these individuals in their new roles, and by facilitating meetings that are best led by individuals who are outside that particular group, among other responsibilities.

• *From teachers as the primary recipients of staff development to continuous improvement in performance for everyone who affects student learning.* To meet the educational challenges of the 21st Century, everyone who affects student learning must continually upgrade his or her skills — school board trustees, superintendents and other central office administrators, principals, teachers, the various categories of support staff (e.g., aides, secretaries, bus drivers, custodians), and parents and community members who serve on policy-making boards and planning committees.

• *From staff development as a "frill" that can be cut during difficult financial times to staff development as an essential and indispensable process without which schools cannot hope to prepare young people for citizenship and productive employment.* Both the development of school employees and significant changes in the organizations in which they work are required if schools are to adequately prepare students for life in a world that is becoming increasingly more complex. Fortunately, results-driven education and systems thinking provide us with the intellectual understanding and the means to create the necessary reforms.

The shifts described above are significant and powerful. They are essential to the creation of learning communities in which everyone — students, teachers, principals, and support staff — are both learners and teachers. All of the things described above will serve to unleash the most powerful source of success for all students, young people who are in the daily presence of adults who are passionately committed to their own life-long learning within organizations that are continually renewing themselves.

CPRE POLICY BRIEFS

REPORTING ON ISSUES AND RESEARCH IN EDUCATION POLICY AND FINANCE

Teachers' Professional Development and Education Reform

New curriculum frameworks, new standards for instruction and assessment, new school-level reform approaches—all may hold promise for improving education. But these and other reforms pose tough challenges to teachers and how they teach. And, traditional professional development methods are not likely to equip teachers to be active and effective participants in today's reform efforts, according to a report written for CPRE.

The conventional model of professional development focusses on expanding a teacher's supply of skills and techniques for classroom teaching, says Judith Warren Little.* This "training model" is inadequate, given the ambitious vision of teaching and student learning driving many reform efforts, she argues. However, some emerging alternatives to the training model are more compatible with the complex demands of today's reforms.

This issue of ***CPRE Policy Briefs*** contains excerpts from Little's article, "Teacher Professional Development in a Climate of Educational Reform."[1] The brief addresses the problem of "fit" between current state and local reforms and prevailing approaches to professional development. The first section summarizes the major themes of reform; the second focuses on the policy dilemma these reforms present for professional development; the third describes emerging alternatives to traditional professional development; and the final section suggests principles to guide the design of professional development opportunities.

Five Streams of Reform and Their Implications for Teaching

Most current initiatives fit into one or more of five streams of reform. Alone, and in combination, the reforms present intricate challenges to teachers as individuals and as members of a wider professional community. The five streams of reform cannot be done well piecemeal, nor can they succeed if attempted only in isolated classrooms. As Fine (1992) puts it, present ventures pursue the "big systemic educational question" of transforming whole systems into "educationally and emotionally rich communities of learners" (p. 2). The five reform streams are summarized on the next page.

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[1] The article appears in *Educational Evaluation and Policy Analysis* 15 (No. 2, Summer 1993):129-151. Copyright 1993, by the American Education Research Association; adapted by permission of the publisher. Preparation of the article and this brief was supported in part by the Evaluating Systemic Reform project of the Office of Educational Research and Improvement, U.S. Department of Education, grant #RR91172005.

RB-11-10/93

CPRE CONSORTIUM FOR POLICY RESEARCH IN EDUCATION
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1 Reforms in subject-matter teaching (standards, curriculum, & pedagogy)

Many of the current reforms aspire to "more ambitious student outcomes." Among them are the whole language and literature-based approach to language arts, the new National Council of Teachers of Mathematics (NCTM) standards, and the like. These reforms are incompatible with textbook-bound curricula or recitation-style teaching; they demand that teachers be well-able to integrate various content areas into coherent lessons, and to efficiently organize students' time. And these demands may represent a substantial departure from teachers' prior experience, established beliefs, and present practice.

In addition, individual teachers may be pressed to move on many fronts at once. For example, elementary school teachers must absorb the changes in content and method for an entire elementary curriculum. Meanwhile, reforms aimed at critical thinking may be in conflict with the basic skills reforms that began in the 1960s and are still very much evident today.

2 Reforms centered on problems of equity and the increasing diversity of the student population

These reforms address the persistent achievement disparities among students from differing family backgrounds and seek to improve both the demonstrated achievement and school completion rates of the lowest achieving groups. Over past decades, such reforms have focused on remedying individual student deficiencies. Recent analyses have drawn attention to the ways in which school practices define and contribute to student failure (Fine, 1991; Oakes, 1985). To address the institutional failure related to low achievement, teachers must learn to identify and alter classroom practices that contribute to student failure and undermine "equal opportunity to learn" (Cochran-Smith & Lytle, 1992; Fecho, 1992).

3 Reforms in the nature, extent, and uses of student assessment

Some reform proposals seek more widespread and rigorous use of assessment that truly measures what students are learning. Yet, the technical advances in assessment are lagging behind the advances in curriculum design. State and local policymakers continue to judge the success of reform efforts on the basis of standardized test scores.

Components of statewide tests that strike teachers as most "authentic" (writing samples, open-ended math reasoning items) are also those that appear difficult and expensive to develop and to score. And at the local level, teachers' interest in alternative forms of assessment far exceeds their professed skill in constructing, evaluating, or incorporating them into their practice. Further, teachers do not have adequate resources available to them from the research and test development communities.

4 Reforms in the social organization of schooling

In recent years there has been a remarkable convergence of interest, activities, and funds around the broad image of "school restructuring." State-supported initiatives in "school restructuring," foundation-supported special projects, and projects sponsored by teachers' associations in concert with local schools and districts have appeared in nearly every state. The most ambitious of these are based on principles, rather than specific practices. They pose a deep dilemma for school leadership and for professional development programs because there are rarely any well-developed models of how these principles translate into specific instructional strategies and activities.

To provide opportunities for professional development in support of the principled redesign of schooling, then, is a much different matter from organizing training and support to implement a specific program or a set of readily transferable practices.

5 Reforms in the professionalization of teaching

The "professionalization" reforms at the state level focus on teachers' demonstrated knowledge base (as reflected in standards for accreditation of teacher education programs and candidate assessment), on teacher licensure requirements, and on the structure of career opportunities in teaching. Reforms to professionalize teaching mean that teachers will increasingly serve as mentors to new teachers, take on new responsibilities over time, and exert more leadership through site-based decision-making.

The many arguments for professionalizing the teaching occupation will not be explored here. However two comments are pertinent. First, policymakers seem most willing to support appeals for professionalization when they believe it will sustain a well-prepared and stable teacher workforce and when they have received assurances of local accountability for student outcomes. Second, these reforms often expand teachers' opportunities and rewards in exchange for increased obligations.

The Policy Dilemma

Professional development using conventional training techniques may work reasonably well to introduce those aspects of reforms that are "technical," or involve mastering a repertoire of classroom practices. However, current reforms do not focus so much on teachers acquiring a "knowledge base" of specific, transferable skills. Rather, they require that school staff translate broad principles into day-to-day practice.

Instead of skills training, these reforms call for expanding teachers' opportunities to learn, experiment, consult, and evaluate. Such opportunities must be embedded in the routine organization of the school day and year. This requires the development of structures and cultures compatible with the image of "teacher as intellectual" (Giroux 1988) rather than teacher as technician. Policymakers and school officials confront serious difficulties in matching the existing resources for professional development to such challenges. Major challenges can be summarized under four headings:

Surmounting the limitations of packaged knowledge

Given the option, district and school administrators prefer "well-packaged programs" of staff development (Little et al., 1987), which are readily defended, managed and evaluated. But such programs are not likely to meet current needs. Alternative approaches, however, are less structured, take more time and may be harder to defend to cost-conscious school boards. But packaged programs which use research as a warrant for recommending specific practice rather than for informing teachers' judgements miss the opportunity to invite teachers to become critics and producers of research, participants in a more visible and consequential manner.

Spreading innovation beyond the margins

The training paradigm dominates the world of teachers' professional development and most training places teachers in passive roles as consumers of knowledge produced elsewhere. The "workshop menu" is fragmented in content, form, and continuity—at precisely the time when teachers are confronted with the challenge of redesigning schooling (Moore & Hyde, 1981; Little, 1989).

On the whole, innovative approaches that depart from the training model remain small in scale and number. Most have been supported with private dollars (foundation and corporate funding) and have had relatively little impact on the configuration of publicly-supported professional development. Risks associated with moving from the margins to the center are well known; even teacher-centered programs risk "bureaucratization" if they are absorbed within existing district structures for professional development.

Centering learning opportunities in the school workplace

Concentration on formal programs of professional development tends to obscure issues of obligation, incentive, and opportunity in the salaried work day and work year. As the arena in which teaching traditions and reform demands confront one another most sharply, the school workplace is both the most crucial and the most complex of settings for teachers' professional development. Teachers' motivations, incentives, and frustrations come foremost from their responses to their students and the circumstances in which they teach them. Teachers' desires to protect their autonomy may be intensified by their relations with each other and with administrators. Clearly, transforming the workplace into a site for more effective learning and sharing requires more than shifting staff development resources and activities to the school site.

Deciding the locus of responsibility for professional development policy

The state and the district are the most prominent players in defining and promoting reform, and in sponsoring formal occasions of professional development. Various professional associations are playing a less visible but potentially influential role. In many districts, school staff also are active participants, setting priorities, content, and character of professional development.

With multiple players and multiple levels of policy and practice in professional development, several questions are relevant. First, what "fit" between reform and professional development is best achieved at each level or niche in the policy system, and through what policy mechanism? To what extent does policymaking at each level rely on regulation or persuasion? Second, in what ways and to what extent are the various policy orientations congruent or in conflict? For example, a district's interest in "comprehensive restructuring" may operate to displace small, vital pockets of initiative by teachers in individual schools.

In the absence of a good fit between the nature of the reform task and the nature of professional development, the inclination is nonetheless to do *something* in the name of professional development. That something is likely to look very much like the existing menu of training options. But such decisions tend to consume all or most of the available resources, while the more ambiguous aspects of reform are granted comparatively less attention or neglected altogether.

Alternatives to Traditional Models

Alternatives to traditional models rest on the assumption that the best forms of professional development engage teachers in the pursuit of learning in ways that leave a mark on their perspectives and their practice. These approaches communicate a view of teachers as classroom experts, and also as persons embarked on an intellectually demanding career that may span more than 30 years. Examples of these approaches are highlighted below.

Teacher collaboratives and other networks

Subject-specific teacher collaboratives in mathematics, science, and the humanities have grown in size, visibility, and influence over the past decade. Brian Lord (1991) says that these subject collaboratives share the view that teachers' professional development encompasses: "(a) teachers' knowledge of academic content, instruction, and student learning, (b) teachers' access to a broader network of professional relationships, and (c) teacher leadership in the reform of systemwide structures " (p. 3).

One example of such a collaborative, the Philadelphia Alliance for Teaching Humanities in the Schools (PATHS) emphasizes engaging teachers directly in the modes of inquiry used by the various humanities disciplines. The project's goal of providing urban students with the "real thing"—a challenging and genuine humanities curriculum—required a parallel experience for teachers.

PATHS teachers work directly with the city's rich humanities collections and with the curators and other experts who acquire, maintain, and interpret them. The teachers take advantage of minigrants which give greater incentives for collaborative work. They also participate in colloquia on major topics, designed as "pure" intellectual experiences, "divorced from the practical considerations of [teachers'] jobs" (Hodgson, 1986, p. 32); and in summer institutes in literature, history, and languages. All the programs are conducted on site where the relevant collections are held.

The collaboratives underscore teachers' involvement in the construction of subject matter knowledge. Without being linked narrowly to specific reform proposals, they prepare teachers to make informed responses to reforms in subject matter teaching and student assessment.

Subject matter associations

The work of teachers' professional associations is nearly invisible in the mainstream professional development literature. We know little about the roles played by the largest and most prominent subject matter associations (such as the National Council of Teachers of English, and National Council of Teachers of Mathematics) in the professional lives of teachers or in shaping their dispositions toward particular reforms. Yet it is clear that the subject associations are exerting increasingly powerful influences in the design of subject curriculum and assessment standards.

The subject matter associations are professional communities that extend well beyond the school walls, and are independent of the employing organizations but positioned to exert strong influence on teachers' dispositions toward reform proposals. To the extent that an association's most active members also occupy leadership roles within their school, districts, or collective bargaining units, the association's effect may be multiplied.

School-University collaborations targeted at school reform

Professional development is one integral feature of some school-university collaborations designed to support school reform. But these collaborations have had a rocky history. As instruments of reform, and as sites for professional development, they have had difficulty overcoming longstanding imbalances in status, power, and resources. As these partnerships evolve, however, they are moving toward greater parity in obligations, opportunities, and rewards.

The Coalition of Essential Schools, for example, offers the image of the school "friend," the insider/outsider attached to the school to provide support, expand access to resources and to critique school progress.

In one Philadelphia partnership, university faculty, teachers, prospective teachers, and secondary school students are all participants in research into aspects of a multicultural society (Cochran-Smith & Lytle, 1992; Fecho, 1992). In this instance, teachers' professional development is intricately interwoven with the daily life of the classroom.

In another example, faculty from National-Louis University are partners with the Chicago Public Schools in support of various subject matter reforms. The goal of this partnership is to promote breakthroughs in conceptual understanding for the teachers and to immerse them in mathematical experiences rather than focusing on mathematical skills or methods. The program aims to provide professional development that is much broader than training and that engages local teachers in a leadership role.

On the whole, these partnerships have formed between individual activists in universities and schools or districts, or between individual consultants and schools, or between departments of education and local schools. They have not routinely incorporated faculty from subject matter departments. And in large institutions, multiple "partnerships" may operate in ignorance of one another's efforts. Despite such difficulties, collaborations hold promise as vehicles for more effective professional development.

Special institutes and centers

Among the accounts that teachers offer when they are asked to describe favorable professional development experiences, certain stories stand out. They describe participation in special institutes or centers where teachers enjoy sustained work with ideas, materials, and colleagues. Teachers say such institutes and centers offer great depth and focus, enough time to grapple with ideas and materials, the sense of doing real work rather than being "talked at," and an opportunity to consult with colleagues and experts.

Compared to the volume of studies examining district-sponsored training or school improvement projects, research on the effectiveness of institutes and center is rare. Anecdotal evidence points to two important policy issues: scale and scope. These organizations concentrate resources, meaning more cost per participant and less access than more modest local ventures. Further, it is not clear how participation by relatively few teachers would effect the larger education community.

Professional Development Principles and Practices

Each of the alternative professional development approaches described above embrace (more or less) certain principles that may fit the complexity of current reforms. Each principle represents a challenge to some aspect of present practice. Teachers' professional development might reasonably be tested against these principles:

- **Professional development should offer meaningful intellectual, social, and emotional engagement with ideas, with materials, and with colleagues both in and out of teaching.**

This principle challenges training programs that contain shallow, fragmented content and call on teachers to passively implement reforms developed elsewhere. It also acknowledges teachers' limited access to the intellectual resources of their communities and subject fields.

- **Professional development should take explicit account of the contexts of teaching and the experience of teachers.**

This is a challenge to the "one size fits all" approach of staff development that offers standardized content to teachers whose experience, expertise and workplaces vary widely.

- **Professional development should offer support for informed dissent.**

To permit or even foster dissent (such as by creating structures for devil's advocate arguments) places importance on the evaluation of alternatives and the close scrutiny of underlying assumptions. In such a system, dissenters may be less likely to be labelled as "resisters."

- **Professional development should place classroom practice in the larger contexts of school practice and the educational careers of children.**

This is a challenge to a narrow, technological view of curriculum reform that emphasizes the accumulation of specific skills and treats teachers at classroom decision-makers independent of larger patterns of practice.

- **Professional development should prepare teachers (and students and parents) to use the techniques and perspectives of inquiry.**

While there are times when technical skill training is appropriate, this principle looks to a model based more strongly on the pursuit of knowledge. It acknowledges that the existing knowledge base for teaching is relatively slim and that educational strength may come less from teachers' willingness to *consume* research findings that from their capacity to *generate* knowledge and assess knowledge claimed by others

- **Professional development should balance support for institutional initiatives with support for those initiated by teachers individually and collectively.**

This is a challenge to the policy vacuum in the allocation of professional development resources. Few states or districts have any mechanism for setting professional development priorities and tracing how the entire configuration of professional development obligations and opportunities aligns with their views of schools, teachers, teaching, and teacher development. Evaluation and research tend to focus on individual activities or projects rather than on the policy import of whole patterns of resource allocation.

Conclusion

This brief does not suggest that the training model is without merit. The training-coaching strategy that dominates local professional development has shown consistent results when training content can be represented as a repertoire of discrete practices and where classroom performance is oriented toward specified student outcomes. And the best local activities incorporate the wealth of research on effective training and support.

However, the content of much training communicates a view of teaching and learning that is at odds with current reform initiatives. The five streams of reform discussed in this brief present a challenge of considerable complexity, scope, and ambiguity. Yet common professional development requires little of teachers in the way of intellectual struggle or emotional engagement, and takes only superficial account of their histories or circumstances.

The training strategy, appropriately linked to those aspects of teaching that are correctly viewed as transferable skills, can play a useful role in a broader approach to professional development. But it cannot meet the challenges of today's reforms on its own.

To spur widespread improvement of professional development, we must be willing to search for and develop ambitious models that reflect the principles of engagement with ideas, context, and sustained inquiry discussed above.

Whatever the shortcomings of the knowledge base on which current reforms stand, there is enough knowledge to move forward. We have the "knowledge, methods, assessment strategies to transform our classrooms into engaging, critical and creative sites of intellectual growth and personal development" (Fine 1992, p. 30).

But the success of the trailblazing individuals and institutions will rest ultimately on a crucial fund of political will. Policymakers, administrators and teachers themselves must make professional development a priority in the current reform climate.

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CPRE Policy Briefs are published occasionally by the Consortium for Policy Research in Education. The Consortium operates two separate, but interconnected research centers: The Policy Center and The Finance Center.

CPRE is funded by the U. S. Department of Education's Office of Educational Research. The Policy Center is supported by grant #OERI-R117G1007; the Finance Center is supported by grant #OERI-R117G10039.

Members of CPRE are: Rutgers, The State University of New Jersey; the University of Wisconsin-Madison; Harvard University; the University of Michigan; and Stanford University.

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Teacher Development in Professional Practice Schools

Ann Lieberman
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This article first appeared in *Teachers College Record 92*, (1): 105-122.

It was originally commissioned by the American Federation of Teachers (AFT), Education Issues Department, as part of a grant from the Exxon Foundation on the conceptualization of professional practice schools.

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In the current period of educational reform, the movement to restructure schools has been linked with initiatives to improve the preparation and ongoing development of teachers. Professional practice schools, also known as professional development schools, have emerged as a promising model for connecting school renewal and the reform of teacher education. Unlike laboratory schools sponsored by universities and operating independently of public education, professional practice schools exist as part of public school systems, are governed by lay boards of education, and serve public school populations. These schools are best characterized as having three complementary agendas: (1) to rethink and reinvent themselves for the purpose of building and sustaining best educational practices; (2) to contribute to the preservice education of teachers and induct them into the teaching profession; and (3) to provide for continuing development and professional growth of experienced inservice teachers. This third agenda, teacher development, is the focus of this article.

We approach the topic of teacher development in professional practice schools with both optimism and caution. We are optimistic because we think the time is ripe for the creation of professional practice schools and because we know from our own experience and the experience of others that teacher development activities can enhance efforts to improve teaching and to improve schools. We are cautious because we also know that in the name of professional development, educators have committed a multitude of sins. Too often structured activities and programs have served to reinforce the status quo rather than change it, perpetuating the "paternalistic system that reinforces 'schooling as usual'" (Lambert 1988, p. 666). We think it is important, then, to define what we mean by teacher development and to distinguish our construction of the concept from the competing notions of inservice education and staff development.

To our way of thinking, the term in-service education has come to be synonymous with training and implies a deficit model of education. Before the 1950s and the growth of teachers' colleges, there was a focus on certification and licensure of teachers. Perhaps because of this, there was little concentrated effort on thinking about teacher development for inservice teachers. Authoritarian management practices and talking about teaching practices, rather than talking with teachers about their practices, was seen as legitimate inservice education. In the first National Society for the Study of Education (NSSE) Yearbook that focused primarily on inservice (1957), there was a major shift, in discussion if not in practice, to democratic practices, cooperative research, and collaborative work between teachers, principals, and researchers. The teacher came to be seen not as an object but rather as an engaged subject, capable of continuous development. These two models, a deficit approach, assuming that teachers need information from people in authority, vs. a collaborative approach, based on notions of teachers as colleagues engaged in inquiry about practice, became deeply ingrained in the profession.

After the launching of Sputnik, coincidentally in the same year that the NSSE yearbook was published (Edelfelt and Lawrence, 1975), inservice took hold once again as subject matter specialists from the arts and science faculties in universities were enlisted to write teacher-proof curricula. Teacher institutes, funded under the National Defense and Education Act (NDEA), proliferated. These institutes were designed either to train teachers to use new, externally developed instructional materials or to update teachers in current academic thinking in the content areas. The failures of this approach to professional development are legion and have been carefully documented (Sarason, 1982). One might suppose that the notion of inservice education as training died a quiet death some time ago. Sadly, this is not the case. In many districts and schools, professional development still implies a deficit training model. Assemblies filled with an entire school staff still dot the landscape of allocated "staff development days." Outside experts still transmit "the word," be it assertive discipline, mastery teaching, or the elements of effective schools, to the unanointed. Teachers are viewed as "the passive recipients of someone else's knowledge" (Miller, in press) rather than as sources of knowledge themselves or active participants in their own growth and development.

The term staff development, on the other hand, implies a broader notion of professional development – one with which we are more, but not totally, comfortable. In the mid-seventies, there was a major shift in the research on and writing about staff development, exemplified by the findings of the Rand Change Agent study (McLaughlin and Marsh, 1979), John Goodlad's analysis of the League of Cooperating Schools (Goodlad, 1975), and Gene Hall and Susan Loucks' work on teacher concerns (Hall and Loucks, 1979). This shift was most notable for its emphasis on the school as an organization and the connection that it made between the development of teachers as individuals and the development of the school as a whole. In 1979, we defined staff development as "working with at least a portion of a staff over a period of time with the necessary supportive conditions" (Lieberman and Miller, 1979). While this approach to teacher development was more broadly construed than inservice training, it oftentimes, though not always, assumed that the role of development was to assist teachers in either adopting an externally designed program, making adaptations to some technological innovation, or implementing a federal or state mandate.

We choose here to use the term teacher development when we write and talk about professional growth activities in a professional practice school. By teacher development, we mean continuous inquiry into practice. In this construction of professional development, we see the teacher as a "reflective practitioner" (Schon, 1983; Schon, 1987), someone who has a "tacit knowledge base" and who then builds on that knowledge base through ongoing inquiry and analysis, continually rethinking and reevaluating her own values and practices. Teacher development is not only the renewal of teaching, but it is also the renewal of schools. Teacher development is, in effect, culture building. In the following pages, we first provide a framework for developing a culture of inquiry in a school, then consider professional growth activities that are appropriate to that culture, and finally discuss some of the problems and dilemmas that must be recognized and worked through to maintain and support teacher development in professional practice schools.

Building a Culture of Support for Teacher Inquiry

Having made the case for teacher development as continuous inquiry into practice, we are well aware of the complexity of this notion, the difficulty of transforming it into reality, and the necessity of having, or creating, a culture in the school that supports teachers as they become active inquirers into the process of teaching and learning. Fortunately, in the last few years, research and practice have provided some important insights about how such a culture may be constituted. Five elements have emerged as essential; they are: (1) norms of colleagueship, openness, and trust; (2) opportunities and time for disciplined inquiry; (3) teacher learning of content in context; (4) reconstruction of leadership roles; and (5) networks, collaborations, and coalitions. Below, we discuss each of these elements and how they combine to create a culture of support for teachers engaged in continuous inquiry.

Colleagueship, Openness, and Trust

Judith Warren Little (Little, 1981; Little, 1986) in what has become a benchmark study of staff development, followed six urban schools as they became involved in district-sponsored staff development. Her findings indicated that norms of collegiality and experimentation were most responsible for the successful implementation of new programs. In schools where the principal was actively engaged with teachers and announced expectations for and modeled behaviors of colleagueship, there was increased support for self-examination, risk-taking, and collective reflection on practice. When teachers and principals observed each other in classrooms, had time to talk about what they were doing, and worked to find solutions for commonly defined problems, the life of the teachers in the school was transformed. Traditions of privacy, practicality, and isolation (Lieberman and Miller, 1984) were replaced by shared ownership of issues, a willingness to consider alternative explanations for practices and behaviors, and a desire to work together as colleagues. In effect, in developing successful staff development in support of a new program, the staff was building a new culture for the school and defining new ways of being for themselves as teachers.

> The successful program rested on long-term habits of shared work and shared problem solving among teachers. Such patterns of mutual assistance, together with mechanisms by which teachers can emerge as leaders on matters of curriculum and instruction are also typical (Little, 1986, p. 42).

These notions of shared work, shared problem solving, mutual assistance, and teacher leadership in curriculum and instruction are -- to our mind -- the cornerstones of building a school culture that supports continuous inquiry into practice.

Susan Rosenholtz, in her study of the school as a workplace (1989), added to our understanding of the effects of the norms that Little describes. Rosenholtz categorized schools as being either "learning enriched" or "learning impoverished" (Rosenholtz, 1989, pp. 80, 81). Learning enriched schools had collaborative goals at the building level, minimum uncertainty, positive teacher attitudes, principal support of teachers to the point of removing barriers, and support for collaboration rather than completion. On the other hand, learning impoverished schools had no clear or shared values, were places where teachers rarely talked to each other, where work was perceived as routine, and where both self-reliance and isolation flourished. In the learning impoverished schools, teachers, with no vehicle for discussion and reflection, retreated to their individual classrooms, kept quiet about their successes and failures, and assumed a public stance of being expert teachers for fear of being found out to be less than adequate. In the learning enriched schools, the opposite was true. Teachers who shared their successes and failures were more willing to identify and explore common problems and seek common solutions. The myth of expertise was replaced by the reality of collective struggle and discovery. As did Little, Rosenholtz provided evidence that norms of colleagueship and collaboration were among the necessary conditions for teachers to reconceptualize their work, to engage in active investigations about their practices, and to expect that professional learning and growth were part of their worklife in schools.

Opportunities and Time for Disciplined Inquiry

In a school where teachers assume leadership in curriculum and instruction and where reflective action replaces routinized practice, the need for providing opportunities and time for disciplined inquiry into teaching and learning become crucial. Unlike traditional school settings, professional practice schools are places where teachers, sometimes working with university scholars and sometimes working alone, do research on, by, and for themselves. It is necessary that professional practice schools provide the conditions so that teachers can develop the skills, perspective, and confidence to do their own systematic investigation.

The notion of teacher-as-researcher is not new. Writing over 20 years ago, Robert Schaeffer, then dean at Teachers College, Columbia University, urged that schools should organize as "centers of inquiry" (Schaeffer, 1967). More recently, Miles Myers, president of the California Federation of Teachers, argued that "school site teacher research projects are a basic requirement of the current second wave of school reform" (Myers, 1989, p. 1). The case, then, has been made for teacher research, but the question remains: how do schools organize themselves and create the necessary conditions so that teacher research is encouraged, supported, and used? The answer, we suspect, is not to have externally-driven workshops on research methods and then ask school staffs to apply their learning to practice. Rather, the research sensibility must be infused into the dailiness of the school. Such an infusion takes time and commitment. It begins with an acknowledgement of the importance of norms of collegiality and experimentation; it builds on shared problem identification and a mutual search for solutions; it depends on taking a risk in the classroom; it requires the support of colleagues. Let us present a case in point.

Mary George[1] is a first grade teacher in a school that is trying to organize around Schaeffer's notion of the school as the center of inquiry. For over a year, she and her colleagues have been meeting in grade-level teams and in schoolwide forums. The question the faculty has been grappling with over the year is, "How do we understand more about how children learn?" Mary has had no formal training in research; what she does have is a very specific problem that has been troubling her and her colleagues: how do children approach new words they encounter in their reading? Like her colleagues, Mary has been torn between phonics and whole language approaches, but has been wary about accepting one to the exclusion of the other. She took her problem with her into her class one day and when she generated a list of words that students missed in an initial reading of a big book, she began a spontaneous inquiry into how children learn new words. She asked the children, "How many of you could figure out the word *left*?" One little boy raised his hand and explained how he sounded out the word, beginning with the initial consonant and moving on to the vowel and the final consonant sounds. A little girl raised her hand and began to explain how she knew the story was about hands, and she knows that people have a left and a right hand, and she knew that the word in question began with *l*; so she figured out that the word must be *left*. A third child, another girl, raised her hand, and told the class that she knew the word because she saw it in another book. She proudly found the other book in the classroom library and showed it to the class.

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[1] This case study is taken from field notes by Lynne Miller in Gorham, Maine, as part of a long-range study of school restructuring (1989).

This simple experiment that Mary George conducted in her classroom was, to our minds, the beginnings of teacher research. Mary acknowledged later, in discussing what she did with her grade-level colleagues, that she considered her initial question an enormous risk. She had never approached her teaching as research before, but she also acknowledged that the ethos of inquiry that dominated the school and the support she knew she would get from her colleagues gave her the courage to try her experiment. Needless to say, she was delighted with the results, as were the rest of the first grade teachers who each took Mary's question to her next class. Together, the first grade teachers began putting together the pieces of the puzzle of word recognition in a way that made sense to them and had value to their classroom practices.

Teacher research, of course, can be more complex and more sophisticated than Mary George's spontaneous inquiry. But we should not let sophistication and complexity become the criteria by which we judge disciplined inquiry into practice. Rather, the importance of the question, the legitimacy of the sources of data, and the usefulness of the results should guide our practice. What is important is that authentic teacher research develops in an environment where culture building and professional colleagueship are also being nurtured and sustained.

Teacher Learning of Content in Context

One may argue that all of this talk about teacher development as continuous inquiry into practice is long on process and short on content, that it places too much value on reflection and sharing and not enough value on just what is being reflected upon and shared. As Myrna Cooper reminds us, "In professional settings, when teachers are moved to share, it is usually because they are proud of something they have done with children" (Cooper, 1988, p. 51).

We are fortunate that at the present moment in education we can point to several practices, developing separately and simultaneously, which challenge conventional assumptions about instruction. These approaches share a common belief that the learner is at the center of the educational enterprise. For lack of a better term, we call these approaches *content-in-context learning*. Unlike the call for cultural literacy and core learnings, content-in-context approaches acknowledge the complexity of teaching and learning, provide room for flexibility and diversity, and -- at the same time -- manage to maintain the legitimacy of the content areas and the teacher's responsibility to teach children something of value. Central to this school of thought is the notion that students come to school with prior knowledge and ongoing access to valuable experience, both of which can be tapped to motivate and ground school learning.

David Elkind (1989) in a recent article distinguished this approach, which he views as developmental in orientation, from more conventional school practices, which he identifies as having a psychometric orientation. From the developmentalist point of view, all learners have developing abilities; the task of the schools is to match the curriculum to the student. From the psychometric perspective, on the other hand, intelligence is fixed and measurable; the task of the school is to match like students to each other and to match students to the curriculum. The developmentalist sees learning as a creative, active, and constructive process that engages the learner, continuously and reciprocally, with the content area; content and skills are connected and interdependent. The psychometrician sees learning quite differently. Learning is viewed as a series of acquired behaviors that are mastered through the application of general principles such as intermittent reinforcement; skills and content are independent, and, once mastered, skills are transferable to other knowledge domains. The aim of education for the developmentalist is to create people who, in the words of Piaget, "...are capable of doing new things...who are creative, inventive, and discoverers. The second goal of education is to form minds which can be critical, can verify, and not accept everything that is offered" (Elkind, 1979, p. 115). In contrast, the psychometric aim of education is less general and more technical; that is, to maximize skills acquisition in a way that is quantifiable and meets demands for accountability.

Recent developments in research on cognition further support the developmentalist, or content-in-context, position. This line of research recognizes the complexity of school learning, the necessity of constructing ill-defined problems, the importance of mastering metacognitive strategies as well as knowledge acquisition, the connection of cognition to specific content knowledge domains, the centrality of prior knowledge, and the need for a mix of cognitive and social skills in defining and solving problems. Under this framework for learning, the basic unit of instruction is the task, not the lesson or the textbook (Devaney and Sykes, 1988).

The implications of research on cognition and of the developmental approach are nothing short of revolutionary. They direct us to reconceptualize teaching, to see it as being woven of the same cloth as learning. Teaching and learning are interdependent, not separate functions. Under this view, teachers are primarily learners. They are problem posers and problem solvers; they are researchers; and they are intellectuals engaged in unraveling the learning process both for themselves and for the young people in their charge. Learning is not consumption; it is knowledge production. Teaching is not performance; it is facilitative leadership (Schlechty and Joslin, 1986). Curriculum is not given; it is constructed empirically, based on the emergent needs and interests of learners. Assessment is not judgment; it documents programs over time. Instruction is not technocratic; it is inventive, craft-like, and, above all, an imperfect human enterprise.

Teachers using content-in-context approaches need to add to their teaching repertoires. Lectures, seat work, worksheets, and unit tests must be deemphasized as dialogue, discussion, and production take their place. Whole language, learning math through the use of manipulatives, hands-on science classes, and the process approach to writing all represent content-in-context approaches to learning. The Foxfire Project, which has gained so much national attention, is another example of what we mean. Foxfire is much more than a publication; it is what founder Eliot Wigginton calls a "style of education" (Wigginton, 1989, p. 26) and is best understood through its ten principles:

1. All work teachers and students do together must flow from student desire.
2. Connections of the work to the surrounding community and the real world outside the classroom are clear.
3. The work is characterized by student action rather than passive reception of processed information.
4. A constant feature of the process is its emphasis on peer teaching, small group work, and teamwork.
5. The role of the teacher is that of collaborator and team leader and guide, rather than boss or the repository of all knowledge.
6. There must be an audience beyond the teacher for student work.
7. The academic integrity of the work must be absolutely clear.
8. The work must include honest, ongoing evaluation for skills, content, and change in student attitude.
9. As the year progresses, new activities should grow out of the old.
10. As the students become more thoughtful participants in their own education, our goal must be to help them become increasingly able and willing to guide their own learning, fearlessly, for the rest of their lives (Wigginton, 1989, 26-28).

We think that these ten principles incorporate many of the principles of curriculum and instruction that are implied in contemporary research on cognition. We also believe that this style of education can happen best in an environment where openness and collaboration are valued and where disciplined inquiry is encouraged. If professional practice schools are, in fact, centers of inquiry where continuous teacher development is normative, then the content-in-context style of education provides most of the substance around which inquiry may be focused. But as we cautioned at the beginning, these process approaches to student learning and teacher facilitation must also be continuously examined. Students' products must grow in complexity and thought. Process does not automatically move to better products. It too must be scrutinized by both teacher and student for its importance, depth, and enhanced understanding. We are talking, not about panaceas, but about the development of habits of mind that make it legitimate to continually ask questions of practice.

Reconstruction of Leadership Roles

In traditional school settings, leadership is defined by one's position in the organization. Principals have leadership; teachers do not. In professional practice schools, the whole concept of leadership is in the process of being reconstructed. Thomas Sergiovanni makes what we think is a useful distinction between technical and managerial conceptions of leadership and cultural leadership.

> In human enterprises such as the profession of teaching and schooling, technical and managerial conceptions should always be subordinate to human needs and actions and should always be practiced in service of human ends. Cultural leadership -- by accepting the realities of the human spirit, by emphasizing the importance of meaning and significance, and by acknowledging the concept of professional freedom linked to values and norms that make up a moral order -- comes closer to the point of leadership (Sergiovanni, 1987, p. 127).

What Sergiovanni is proposing is that principals learn to think and act as leaders in ways that are different from custom and tradition. According to Sergiovanni, leaders lead by purpose and empowerment. They have power, but of a different sort than usually practiced. Their power is viewed as "power to accomplish" rather than "power over people and events." They practice the concept of "leadership density...the extent to which leadership roles are shared and the extent to which leadership is broadly exercised" (Sergiovanni, 1987, p. 122). When construed in these ways, leadership becomes something that both administrators and teachers have and use; and leadership becomes an essential ingredient in transforming schools into centers of inquiry.

For principals, life in such a setting requires a radical shift in attitudes and behaviors. In a compelling study of two high school principals, Mary Lynne Derrington brought home the difficulty building administrators have in making the transition from technical and managerial leadership to cultural leadership. She identified three steps in the transition (Derrington, 1989, p. 180):

Tradition	Transition	Transformation
The boss	The lone ranger	Parallel leadership
Branch manager	Hero	Hero maker
Adversarial	Competitive	Collegial
Views teachers as objectives for improvement	Views teachers as vehicles for improvement	Views teachers as partners for improvement
Works through directive	Works through small groups	Works through collaboration and power equalization
Rewards and punishes	Builds coalitions	Solves problems

For teachers, it is equally difficult to assume new roles. Patricia Wasley (1989) uncovered many of the tensions and dilemmas that teacher leaders faced as they assumed new roles in schools. She noted that all the teacher leaders she studied felt constrained by time -- time to both teach and lead effectively and time to work collaboratively with their colleagues. Teacher leaders were often confused about the primary purpose of their positions; were they to support teachers or were they to support administrators? In addition, they had a tough time dealing with their colleagues in their new leadership roles. An egalitarian ethic dominates teaching, and many teachers had difficulty in recognizing one of their own as a leader. To paraphrase Orwell, the notion that all teachers are equal but some teachers are more equal than others went against the grain. Most importantly, the success of teacher leadership depended on the ability of the principal to make the transition from traditional to transformative or cultural leadership.

It is clear, then, that one of the tasks a professional practice school faces is to make the transition from bureaucratic and hierarchical modes of leadership to alternative forms. That this is difficult and fraught with tension must be acknowledged. What also must be acknowledged is that in schools where principals and teachers together make the transition, there exists the real possibility for colleagueship and the development of a new professional culture. In schools where teachers are making responsible and grounded decisions about instruction in their classrooms and where principals are supportive of the decisions that teachers make, the possibility for continuous learning takes root. One example shows what this could look like. Suzanne Soo Hoo (1989) described a collaborative project in which she, in collaboration with another principal and a university faculty member, engaged teachers in a discussion of the misuses of standardized tests. Teachers generated questions of their concern such as:

- How do we know students are learning?
- How do we capture the data that is available in our classrooms?
- What are some new ways of displaying student achievement?

Teachers kept journals, while the university researcher did observations and helped with additional data collection techniques. Through monthly meetings and discussion around both the information teachers used and collected, and alternate sources of data, the principal facilitated the growth of a culture of inquiry. In this case the principal, in partnership with teachers and a university researcher, provided the impetus to look at the frustration of testing and unlocked a variety of understandings about assessment, which in turn led to other subjects for inquiry. Again, description and practice begin to show us how to think about and engage teachers as lifelong learners.

Networks, Collaborations, and Coalitions

While it is important to concentrate energies on the specific school site, it is also important to develop support outside of the school. Too often schools in the process of radical transformation suffer from the "funny farm syndrome." They stand out in their district as different and, oftentimes, threatening. Teachers involved in professional practice schools may find they have a difficult time explaining just what they're about to colleagues within their own district. They may find that the support they need from the immediate environment is lacking. The formation of networks, collaborations, and coalitions is helpful in combating the "funny farm syndrome," in providing the support and encouragement for teachers to continue to experiment, to question, and to work to change common practices in an effort to improve education for children.

Networks, collaborations, and coalitions take many forms. They may be informal collections of people or they may be more formalized partnerships among institutions. In any case, such groupings share some common characteristics. They are alternative in nature, share a common purpose, exchange information and psychological support, are voluntary, and are based on equal participation of all members (Parker, 1979). For examples of how networks function, we draw on our own experience and on the experience of others involved in school improvement efforts.

The Puget Sound Educational Consortium and the Southern Maine Partnership are both members of the National Network for Educational Renewal, a national coalition of school-university partnerships. In both Washington and Maine, the partnerships serve more to connect people across schools and districts than to connect schools to the university. In both settings, groups of teachers come together regularly to discuss and act on matters of common concern. In the past two years, teacher groups have dealt with issues of equity, teacher leadership, restructuring schools, grouping practices, early childhood education, and at-risk students. The power of the groups is that they are self-directed, define their own agendas, and provide the opportunity for teachers of like mind and like disposition to exchange experiences and ideas in an atmosphere of support and common understanding. People who have been involved claim that participation in the groups provides the extra support they need to return to their schools with renewed energy and commitment.

The Coalition of Essential Schools is an example of collaboration at the national level, where schools are drawn together by a common purpose and a clearly defined mission. The Coalition grew out of the work of Ted Sizer and is comprised of over 40 high schools who ascribe to a set of principles that involve different roles for teachers as generalists and for students as workers and a different conception of the high school curriculum; "less is more" has become the credo of the group.[2] Though the Coalition does not provide much opportunity for face-to-face interaction among teachers at member schools, it does serve as a source of support for schools, many of whom are isolated in their districts and who look to a national movement to help legitimate their local efforts.

So, too, the Mastery In Learning Project (MIL) of the National Education Association seeks to link schools together in a national network where common purposes are shared and a common vision is upheld. School faculties join the MIL after they complete a comprehensive profile of their schools and commit themselves to a plan for rethinking and redoing education. Unlike the Coalition, there is no one model for the transformation of schools. Rather, there is a process of analysis, action, and reflection to which members agree. The MIL is linked by a computer network whereby all member schools can conference with each other and have access to an education database to assist in their individual efforts. Like the Coalition, MIL helps legitimize local reform and renewal efforts. In addition, it provides the opportunity for teachers to communicate with their peers from other parts of the country, to form professional alliances, and to support each other in their work.

Networks, collaborations, and coalitions need not be so formal as those we've discussed here. The Philadelphia Teachers' Learning Cooperative is a fine example of teachers coming together on an informal basis once a month to discuss a preassigned reading. In other cities and towns, teachers have formed small resource centers where they can meet to discuss issues, exchange ideas, learn about effective practices, and develop learning materials.

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[2] See Theodore Sizer (1984). ***Horace's Compromise: The Dilemma of the American High School.*** Boston: Houghton Mifflin.

The point we want to make is that schools, like teachers, can become isolated and feel estranged from the mainstream. Schools, like teachers, must learn to reach out beyond their traditional borders and create sources of support, challenge, and legitimacy for themselves. Teachers who see themselves as part of a school in the process of change must also see themselves as part of a profession in the process of change. In that way, the norms and values of the school become part of a larger social system, one that sustains improvement and encourages it.

Teacher Development in Professional Practice Schools

The five elements that combine to create a culture of support for teacher inquiry do not take root quickly. It takes time for change to happen, even in a school that defines itself as different. Teacher development activities must occur alongside the development of the new school culture. In fact, teacher development and culture building are part of the same process in a professional development school. This means that teacher development activities are designed around notions of colleagueship, openness, and trust; they provide time and space for disciplined inquiry; they focus on teacher learning of content-in-context; they provide opportunities for new leadership roles; and they become engaged in networking activities and coalition building beyond the boundaries of the school. Below, we present a few examples of teacher development activities that seem to combine these elements and that hold particular promise for professional practice schools.

Teacher study groups meet regularly to discuss an agreed-upon topic or theme. Teachers rotate leadership of the group. The role of the designated teacher-leader is to select a common reading and to make it available to all group members before the meeting, to structure discussion by preparing a question or problem to answer, to facilitate discussion, to ensure that minutes of the meeting are taken and distributed, and finally to guide the group in making a decision about the direction the next meeting should take. In general, teacher study groups take place outside of the school in an informal setting around a potluck meal or similar occasion.

Curriculum writing involves groups of teachers working together over time with the intention of developing a product for use in the classroom as part of the instructional program. The product varies as the task varies and may take the form of a guide for teaching, an inventory of classroom practices, a statement of expectations of learners and teachers, a program evaluation, a set of recommendations for program design, anything that meets the needs, interests, and inventiveness of the teachers involved (Miller, 1992). Curriculum writing groups are teacher-initiated and teacher-led. They last as long as it takes to complete a task, allowing teachers the opportunity to move in and out of groups as time and interest permits.

Teacher research projects may be individually or group initiated. The project begins with the identification of a problem that matters to people. Even though one person's problem may seem trivial to someone else, it is important to assume that each individual or group engaged in research has a legitimate concern that needs to be understood. The goal of the research is both to understand practice and to improve it. The major activity of teacher research is the collection and analysis of data. Data collection need not be cumbersome or overly technical. Data can be collected through observation, informal interviewing, journal entries, and brief surveys. Researchers do not have to worry about doing complex statistical analysis or proving the generalizability of findings, since the problem under consideration is idiosyncratic to the people involved or to the specific school. Oftentimes, teacher research is published informally for the information and use of other faculty.

Peer observation involves teachers, usually in pairs, making informal contracts to visit each other's classrooms and to observe each other teaching. Sometimes, the visiting teacher will concentrate on the behaviors and practices of the teacher. At other times, the visiting teacher will focus on the actions of the students or of one or two students in particular. In any event, the object of the observation is mutually determined before the visit takes place. The visiting teacher and the teacher being observed then take time to discuss the observation. It is the role of the visiting teacher to provide descriptive feedback to the observed teacher, and it is the role of the teacher observed to make sense of the feedback, either on her own or in consultation with the visiting teacher. The contract is renegotiated after each visit and may be altered or terminated at any mutually agreed-upon point.

Case conferences engage teachers in a method of problem solving usually reserved for the medical and social work professions. In the case conference, a group of teachers agree to meet to discuss cases of individual students. The person presenting the case is responsible for developing a history of the child in school and a description of problematic behaviors, attitudes, or academic concerns. The task of the other group members is to pose questions that help clarify the issues at hand and to offer suggestions for solving the problem. Each meeting focuses exclusively on one case. Participants rotate in presenting cases to the group.

Program evaluation and documentation assumes that teachers want to evaluate current practices as part of an ongoing investigation of what works and what doesn't work for children. As new programs are put in place, new textbooks adopted, new practices of grouping students initiated, new approaches to instruction implemented, and alternative modes of assessment designed, teachers can collect information that will be useful in decision making in the future. Using the techniques of teacher research, an evaluation team collects data on a program or approach that the faculty as a whole has decided is worth evaluating. The evaluation team analyzes the data and presents its findings to the faculty for consideration and action. The role of the evaluation team is not to judge effectiveness, but rather to collect data for decision making by the larger faculty.

Trying out new practices with systematic support from colleagues is one way to make it easier for teachers to try and fail and try again, without beating a hasty retreat to routine and safe ways of doing things. As teachers become interested in content-in-context learning approaches, they may want to experiment with process writing, begin a Foxfire project, or incorporate experiential learning activities into their teaching. We have found that the closer change gets to the individual classroom, the riskier it gets. When a cadre of teachers decides to try out something together, it is easier to experiment and take risks (Little, 1986). This is the way such a cadre works: teachers commit to implement a new approach; they agree to meet regularly to discuss what is happening to them personally in their classrooms; they contract to observe each other and to provide feedback on the new practice; they agree to suspend all judgment and evaluation of themselves and others; they work together to become comfortable with what they are doing and to support each other in doing it better; they give themselves ample time to try and fail and try and succeed. In the end, they become confident of new practices and make decisions about whether to incorporate them into their existing repertoires, to modify them to suit their own needs, or to reject them as not helpful in the improvement of their own teaching.

Teacher resource centers can be easily structured within a school. A small room off the library or media center, a converted stockroom, a renovated space hidden somewhere in the building -- all will suffice. We have seen teacher resource rooms in the basements of buildings and in old rest rooms. The place doesn't matter; what matters is that there is a place for teachers to come together in the school to read professional journals, view educational videos, peruse books and catalogues, or simply engage in informal, but professional, conversation. We suspect that even in a professional practice school, there will still be the need for a traditional teachers' lounge, where people can engage in light banter and some griping as an antidote to the tensions that come with teaching. The teacher resource room, then, serves as an alternative to the lounge, with alternative norms and expectations and alternative ways for people to interact with their colleagues during the school day.

Participation in outside events and organizations is a way for teachers to make connections outside of the boundaries of the school where they work every day. Provision for teachers to visit other schools that are engaged in reform and restructuring efforts are a valuable way for people to broaden their perspectives, become infused with new energy, and consider new ideas. When teachers are actually practicing new efforts and have already accomplished success, opportunities for teaching others about how they have learned their new practice becomes another powerful means for professional development. Attendance at regional conferences is another way that teachers can reach out and connect with kindred spirits in kindred schools. Participation in partnerships with universities and businesses, involvement in coalitions with other agencies, membership in formal networks of teachers or schools are yet other avenues for growth and development.

We have presented a partial listing of the kinds of teacher development activities that can take place as part of the general organization of a professional practice school. We want to make it clear that none of the approaches we suggest is an "add on"; none is initiated outside of the worklife concerns of teachers; none is designed for people by someone else. Each, we think, contributes to the development of a new school culture; each acknowledges that the major goal of teacher development is continuous inquiry into practice.

Teacher Development -- Changing Student and Adult Working Conditions

Our view of teacher development ends where it began, recognizing that the engagement of teachers in the creation of professional practice schools cannot be isolated from the larger vision of creating schools that work for all students. This means that the entire school is involved in discussion and action around the issues of teaching and learning, such as the new knowledge about how students learn, understanding the diverse and multicultural populations of students, as well as developing sensitivities to their changing cultural contexts -- all of which call for new ways of thinking about and organizing teaching so that students are enabled to participate in their own learning.

Teachers, long engaged in private struggles -- successful and unsuccessful -- with their students, need to create and work in collective and collaborative structures. The isolated classroom must give way to a genuine colleagueship as the insulated school must expand to include the whole community. This means that the workplace for both students and adults must change, for they are intimately connected with each other. We know that teacher development involves teachers in learning about how to work together, how to make collective decisions, and how to structure continuous opportunities for their own growth. But at the same time, teachers must be involved in continuous new learnings about students -- their motivation, engagement, connection, and experience -- through practicing new ways of teaching and providing for new ways of student learning. These two strands represent two distinct parts of teacher development, each part taking time, energy, and new knowledge.

We are cautious about saying that if changes are made in the adult workplace environment there will be positive changes in the student learning environment -- or vice versa.

The two environments are connected only if connections are explicitly made. It is possible for teachers to participate on school site committees, be involved in greater decision making, learn how to deal with conflict and negotiate contracts for greater teacher participation in the running of a school, without changing what goes on in classrooms or teams. And conversely, it is possible for several teachers to have classrooms characterized by cooperative learning teams, student-centered learning, and a major focus on problem-solving activities *without* addressing the need for schoolwide structures that promote collegiality and continuous inquiry, which in turn support efforts to improve learning for students.

We are optimistic because professional practice schools can indeed value, promote, organize, and practice teacher development by explicitly connecting to student development. Professional practice schools can provide a variety of learning environments for students as active learners and a workplace environment for the adults, rich in continuous inquiry, peer discussion, and increased opportunities for adult learning.

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Governance and Accountability

COUNCIL OF CHIEF STATE SCHOOL OFFICERS

STATE EDUCATION ACCOUNTABILITY REPORTS, INDICATOR REPORTS, AND REPORT CARDS

June 1994

Compiled by CCSSO State Education Assessment Center
in cooperation with state education agency representatives to
Education Information Advisory Committee

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This inventory of state education reports was compiled by the Council of Chief State School Officers through a survey with all 57 state education agencies (50 states, D.C. , and 5 extra-state jurisdictions) that are members of the Council. The survey respondents were state representatives to the Council's Education Information Advisory Committee (EIAC). States had several opportunities to review and edit the information on their reports. Reports listed in the inventory are published or released by state education departments. In a few states, data collection and analysis are completed by state education departments and reports are released by local school districts. State education representatives determined if a given report has a purpose of education accountability, education indicators, or a report card on education in the state.

State Education Accountability Reports, Indicator Reports, and Report Cards

	Current Reports	Annual report?	Is state report mandated?	Level of Statistics Reported	When is report released?	Contact	Contact's Title	Contact's Phone No.
ALABAMA	Annual Status Report	yes	no	school, district, state	Mid-February	Rex Jones	Manager, Computer Services	205-242-9590
ALASKA	School District Report to the Public	yes	yes	district	Jan. 15 - Feb. 15	Bob Silverman	Supervisor, Data Management	907-465-8680
AMERICAN SAMOA								
ARIZONA-1	Statewide Report for Arizona Pupil Achievement Testing	yes	yes	state, district	June	Charles Wiley	Assessment Program	602-542-3759
ARIZONA-2	Arizona Student Assessment Program March 1993 Assessment Results	yes	yes	state, district	March	Marilyn Henley	Assessment Program	602-542-5528
ARIZONA-3	Annual Report of Progress Towards the National Educational Goals	yes	no	state	September	Jeff Cohen	Special Assistant to Superintendent	602-542-5950
ARKANSAS-1	Statistical Summary for the Public Schools of Arkansas 1990-92	yes	yes	district, co-op level, state	April	Barry Kincl	Coordinator, School Statistics & Fiscal Services	501-682-4258
ARKANSAS-2	Rankings of Arkansas School Districts on Selected Items							
CALIFORNIA-1	School Accountability Report Cards, 1993-94	yes	local reports	school	November	Bill Padia	Dir., Research, Evaluation & Technology Division	916-657-2757
CALIFORNIA-2	High School Performance Report Summary, 1992-93; Middle Grades Performance Report Summaries	yes	no	state, district, school	April	Bill Padia		
CALIFORNIA-3	California Statewide Assessment Reports Elementary Performance Assessment Middle Grades Performance Assessment High School Performance Assessment	yes	yes	school, district, state	December	Dale Carlson	Director, California State Assessment	916-657-3011
COLORADO	State Report Card 1993, Meeting the Challenge, K-12 Public Education in Colorado	yes	yes	state, district	February	Judy Burnes	Exec. Dir., Planning & Evaluation	303-866-6824
CONNECTICUT-1	Strategic School Profiles, October 1993	yes	yes	school, district, state	October	Robert Lucco	Coordinator, Data Collection Unit	203-566-5635
CONNECTICUT-2	A Profile of Our Schools, Condition of Education in Connecticut	biennial	no					
DELAWARE	Performance Assessment Profiles for Delaware Schools, October 1993	yes	yes	state, district, school	October (state) Nov. (school)	Thomas A. Soltys	Education Associate, Data Analysis and Reporting	302-739-4583
DISTRICT OF COLUMBIA	Your School Profile, School Yr. 1992-93	yes	no	school, district	August	Sheila Handy	Deputy Superintendent	202-724-2406
DODDS-1	Annual Test Report, DoDDS, School Year 1992-93	yes	yes	DoDDS system, region	August	Mary Johnson	Research & Assessment Officer	703-696-4490 x152
DODDS-2	Report Card from DoDDS Parents, 1993 Survey Results	biennial	yes	DoDDS system, region	December	Mary Johnson		
FLORIDA	Florida School Report	yes	yes	school, district, state	mid-January	Carole Cowart	Program Specialist	904-487-2280
GEORGIA-1	Georgia School System Profile, 1990-91 (June 1993)	yes	yes	district	September	Les Butler	Asst. Supt., Technical Support Division	404-656-2435
GEORGIA-2	Georgia Student Assessment Program-State Summary (a) Curriculum-Based (b) Norm-Referenced	yes	yes	district	September	Stan Bernknopf	Dir., Research, Evaluation & Assessment	404-656-2688

Council of Chief State School Officers, State Education Assessment Center, Washington, DC, June 1994.

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State Education Accountability Reports, Indicator Reports, and Report Cards

	Current Reports	Annual report?	Is state report mandated?	Level of Statistics Reported	When is report released?	Contact	Contact's Title	Contact's Phone No.
GUAM		no						
HAWAII-1	School Status and Improvement Report	yes	yes, state board	school, district, state	January	Michael Heim	Evaluation Specialist	808-735-9088
HAWAII-2	The Superintendent's Fourth Annual Report on School Performance and Improvement in Hawaii, October 1993	yes	yes, state board	state summary	October	Michael Heim		
IDAHO	1992-93 Idaho School Profiles	yes	no (data required)	district	January 1	Marian Hylen	Bureau Chief for Finance	208-334-3330
ILLINOIS	1992-93 Report Card	yes	yes	school, district, state	October 31	Richard Yong	Senior Research Scientist	217-782-3950
INDIANA	(indicators accessible by computer)	yes				Michael Huffman	Director, Education Information	317-232-0808
IOWA	Annual Condition of Education Report, November 1993	yes	no	state	November 15	Leland Tack	Administrator, Div. of Financial & Information Services	515-281-4835
KANSAS-1	Annual Report State Board of Education's QPA	yes	no	state	January	Ann Harrison	Director, Planning, Research & Evaluation	913-296-3604
KANSAS-2	State Assessment Report	yes	yes	state	September	Ann Harrison		
KENTUCKY-1	School Accountability Index Report, February 1993	yes	no (data required)	school	February 1-15	Scott Trimble	Dir., Division of Assessment Implementation	502-564-4394
KENTUCKY-2	Annual Performance Report 1992-93, October 1993	yes	yes	district	October 1	Vicki Basham	Assoc. Com., Office of School Improvement	502-564-2116
LOUISIANA-1	Louisiana Progress Profile, District Composite Report	yes	yes	district	mid-February	Sam C. Pernici	Administrator, Bureau of School Accountability	504-342-3756
LOUISIANA-2	School Report	yes	yes	school	mid-March	Sam C. Pernici		
LOUISIANA-3	Louisiana Progress Profile, State Composite Report	yes	yes	state	May/June	Sam C. Pernici		
MAINE-1	Report Card for Maine Schools 1992-93 (each district)	yes		district, school, state	March	Jim Watkins	Director, MIS Division	207-287-5841
MAINE-2	Guide to the Maine Educational Assessment 1992-93	yes		state	July 1	Horace Maxie	Director, MEAP	207-287-5800
MAINE-3	Performance Report for Maine Schools	yes		state	September 11	Pat Gurette	Public Information	207-287-5800
MARYLAND	Maryland School Performance Report, 1993, State and School Systems	yes	yes, state board	state, district, school	November/Dec.	Mark Moody	Dir., Planning, Results & Information Management	410-333-2045
MASSACHUSETTS	Massachusetts School District Profiles	yes	yes	district, school	June	Peter Abair	Director, Parent Information Center, Exec. Office of Education	617-727-1313
MICHIGAN	Michigan School Report (SEA & Governor's report)	yes	no	district, school	May	James Phelps	Assoc. Supt., Information Systems	517-373-3909
MINNESOTA		no						
MISSISSIPPI-1	Superintendent's Annual Report (Financial, Teachers, Students)	yes	yes	district	mid-January	Clyde Hatton	Director of Statistics	601-359-3487

Council of Chief State School Officers, State Education Assessment Center, Washington, DC, June 1994.

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State Education Accountability Reports, Indicator Reports, and Report Cards

	Current Reports	Annual report?	Is state report mandated?	Level of Statistics Reported	When is report released?	Contact	Contact's Title	Contact's Phone No.
MISSISSIPPI-2	Report Card of School Districts (Test	yes	yes	district	mid-January	Clyde Hatton		
	Scores)							
MISSOURI-1	Profiles of Missouri Public Schools,	yes	yes,	state, district	March/April	Woodrow Fitzmaurice	Director, School Data	314-751-2569
	Financial, Pupil and Staff Data		legislature					
MISSOURI-2	Report of the Public Schools of							
	Missouri							
MONTANA		no						
NEBRASKA	(school district reports)	yes	district	district	local policy	Jack Gilsdorf	Director of Assessment &	402-471-2444
			reports				Evaluation	
NEVADA	Nevada Education, A Status Report	yes	yes,	school	March	Kevin Crowe	Director, Planning, Research &	702-687-3130
			legislature				Evaluation	
NEW HAMPSHIRE		no						
NEW JERSEY	The School Report Card	yes	yes,	school	September	Jerry DeMauro	Director, Bureau of Statewide	609-292-5180
			legislature				Assessment	
NEW MEXICO	The New Mexico Accountability	yes	yes,	district	mid-December	Jerry Cavatta	Director, School & Student Data	505-827-6526
	Report 1992-1993		legislature				Management	
NEW YORK	Statewide Profile of the Educational	yes	yes,	state, district	February	Martha Musser	Associate in Ed. Finance Research	518-473-8169
	System (Vol. 1) and Statistical Profiles of		legislature					
	Public School Districts (Vol. 2)							
NO. MARIANA ISLANDS								
NORTH CAROLINA-1	State of the State	yes	yes	state	April/May	Bill Brown	Director of Testing Services	919-715-1207
NORTH CAROLINA-2	1993 Report Card, The State of School	yes	yes	district	Jan./Feb.	Bill Brown		
	Systems in North Carolina							
NORTH CAROLINA-3	LEA Performanced-Based	yes	yes	district	March/April	Bill Brown		
	Accountability Program (PBAP)							
NORTH CAROLINA-4	School Improvement Report	yes	yes	school	March	Bill Brown		
NORTH CAROLINA-5	Statistical Profile	yes	no	state, district	July	Engin Konanc	Chief Consultant, Statistical	919-715-1617
							Research and Data Center	
NORTH DAKOTA	Finance Facts (by district); Education	yes	no	state, district, school	October	Ron Torgeson	Dir., Information & Research	701-224-2289
	Directory (statistics by school) 1993-94							
OHIO	Education Management Information	yes	yes	district	February	Margie Pickens	Asst. Dir., Information	614-752-8732
	System (EMIS): District Profile						Management Services	
OKLAHOMA-1	Results 1993, Oklahoma Educational	yes	yes	state, district, school	February 1	Frank Raia	Asst. Director, Accountability	405-521-2578
	Indicators Program, February 1994							
OKLAHOMA-2	Oklahoma Historical Report (1994)	periodic	yes	district	February	Frank Raia		
OREGON	Oregon Report Card, Fall 1993	yes	yes	state	September	Jim James	Specialist on Assessment &	503-378-8004
							Evaluation	
PENNSYLVANIA-1	Meeting the Challenge, 1993	yes	no	state	September	Don Spangler	Exec. Asst. to the Secretary	717-783-9783
PENNSYLVANIA-2	School Profile, November 1993	yes	yes, state	state, district, school	November	Jim Hertzog	Chief, Division of Evaluation	717-787-4234
			board				and Reports	
PUERTO RICO	Statistical Annual Report	yes	no	state, region, district	February	Aida I. Rodriquez Roig	Assistant Secretary	809-754-1130

Council of Chief State School Officers, State Education Assessment Center, Washington, DC, June 1994.

State Education Accountability Reports, Indicator Reports, and Report Cards

	Current Reports	Annual report?	Is state report mandated?	Level of Statistics Reported	When is report released?	Contact	Contact's Title	Contact's Phone No.
RHODE ISLAND-1	Education Indicators Report on the Condition of Education, 1991	yes	no	state, district	February	Karen Cooper	Specialist, MIS	401-277-2841
RHODE ISLAND-2	Student Performance in Rhode Island: Reaching for High Standards	yes	no	state, district, school	December	Jim Karon	Coordinator of State Assessment	401-277-3126
SOUTH CAROLINA-1	South Carolina Education Profiles 1993	yes	no	district	September	Valerie Truesdale	Senior Exec. Asst., Division of Policy	803-734-8266
SOUTH CAROLINA-2	District Improvement Reports	yes	no	district, school	Spring	Valerie Truesdale		
SOUTH CAROLINA-3	What is the Penny Buying for SC?	yes	yes	state	February	Valerie Truesdale		
SOUTH DAKOTA	Executive Summary of School Profiles, 1993 South Dakota School Report Card Program	yes	yes	school	November 1	Susan Ryan	Director of School Finance	605-773-4748
TENNESSEE-1	21st Century Schools Report Card	yes	yes	state, district, school	October 1	Kip Reel	Deputy Commissioner	615-741-5158
TENNESSEE-2	Student, Teacher and School Performance 1994							
TEXAS	Snapshot '93: 1992-93 School District Profiles	yes	yes	state, district, school	Fall	Cherry Kugle	Project Director, Policy, Planning & Evaluation	512-463-9701
UTAH	Superintendent's Annual Report, (December 1993)	yes	yes	state, district	by December 31	Hal Robins	Coord., Finance & Statistics Section	801-538-7669
VERMONT	Summary of the FY93 Statistical Report of Schools	yes	no	district	January 1	Gerald Cassell	Supervisor, Computer Systems & Information	802-828-3151
VIRGIN ISLANDS	Statistical Summary Report		no		end of the year	Pat Nathan		
VIRGINIA	1993 Virginia Summary Report, Outcome Accountability Project	yes	yes	state, district, school	April/May	Cameron M. Harris	Division Chief, Information Systems	804-225-2099
WASHINGTON	Education in Washington, 1989-90	periodic				Al Rasp	Director of Assessment and Integrated Curriculum	206-753-3449
WEST VIRGINIA	West Virginia Report Cards, State, County and School Data 1992-93, December 1993	yes	yes	state, district, school	mid-December	Doris White	Technology and Information Systems	304-558-8869
WISCONSIN	School Performance Report, January 1993	yes	yes	school level	January	Tom Beebe	Division for Management and Budget	608-267-9619
WYOMING	Wyoming's Education Progress Report (October 1991)	periodic	no				Governor's Office	
TOTAL (N=57 state education agencies)	51	48	36	39 by District 28 by School				

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Beyond Site-Based Management: Empowering Teachers to Reform Schools

Ms. Midgley and Mr. Wood present a model for school reform – anchored in research – that involves teachers in making critical decisions that affect the very purposes and goals of education.

BY CAROL MIDGLEY AND STEWART WOOD

SITE-BASED management or school-based management (SBM) makes such good sense. Teachers, as professionals, want their experience and expertise to be valued and used, and they are in a position to make informed decisions and to provide crucial insights into the teaching/learning process. So it is discouraging to hear comments such as this one from a middle school teacher: "Site-based decision making is wonderful on the one hand, but I'm not sure we want to sit down and rehash something for hours and hours – making decisions about things that may or may not get done the way we wish them to anyway." Rumblings of discontent and disenchantment with SBM are becoming more common both in conversations and in publications.[1] Particularly distressing to us are reports that

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Illustration by Mario Noche

there is little difference between the day-to-day functioning of schools using SBM and those not using it and that the education for students in "restructured" schools appears to be no better than it was before.[2] Is SBM to be another example of a reform that recycles periodically without having any significant impact on the nature of teaching and learning?[3]

SBM has been defined in several ways, and in practice it varies in terms of participants and scope. SBM means different things to different people, but all seem to agree that it involves changing school governance, moving in some way from a top-down approach to a bottom-up approach. It is not our intention here to summarize the literature on SBM or to make pronouncements about the success or failure of this movement. Rather, we wish to initiate some dialogue about the conditions under which SBM can be used to bring about significant changes in the quality of education for students. We join with others who point out the need to move away from seeing SBM as a goal or an end or a new wave of school reform and to see it instead as an *important process* for achieving substantive school reform.

A number of school reform programs use SBM to achieve their goals, but they are rarely mentioned as examples of the successful use of SBM. We will discuss some of these programs – and, in particular, we will present a model for school reform that involves teachers in making critical decisions that affect the very purposes and goals of education. This approach to reform is anchored in research and has been tested at both the elementary and the middle school levels by researchers at the National Center for School Leadership (NCSL). Teacher decision making and empowerment are critical components of this model but are not seen as ends in themselves. Before going into more detail, we would like to make some additional comments about SBM and the recent push to "restructure" schools.

SBM AS PROCESS RATHER THAN END

The current wave of school reform has gone through two phases.[4] The first phase was guided by the belief that excellence could be imposed from the top. Merit pay, career ladders, and mentoring programs were implemented to improve teaching. State legislatures and local school boards increased requirements for graduation, restricted extracurricular activities to students with certain grade-point averages, denied driver's licenses to dropouts, and developed tests that had to be passed before students could graduate. Today many observers believe that this effort was often misguided and that there is some evidence that teaching and learning have been unaffected – or negatively affected – by these efforts.[5]

The second phase of school reform has involved "restructuring." To many, this translates into reformed governance or SBM. Several years ago we were invited to attend a conference on "restructuring schools." We were somewhat surprised to hear presenter after presenter describe various approaches to SBM. At the end of the first day, we asked somewhat timorously if restructuring was being equated with SBM. We were told that restructuring could be conceptualized in diverse ways, but – for the purposes of this conference – restructuring was being defined as site-based management. We were confused because we had assumed that "school restructuring" was the fancy new term for "school reform" and that the discussion would be broad-based and aimed at improving educational outcomes for students.

This confusion about the definition of restructuring seems to have persisted.[6] For some, restructuring implies fundamental school reform, including making changes in curriculum and instruction as well as in how schools are organized and administered, providing a supportive work environment for teachers, building partnerships and networks, and increasing the participation of parents and the community.[7] But this does not appear to be the dominant view. For many, restructuring means shared governance. SBM *is* the reform.

USING RESEARCH AND THEORY TO GUIDE DECISION MAKING

SBM takes different forms, depending on the constituencies involved. In some cases community members, parents, students, and a broad range of school personnel are involved in making decisions that affect their schools. In other cases SBM simply means moving away from strict top-down decision making and giving some of those on the "bottom" a chance to have their say. Regardless of the form, the link between SBM and improved educational experiences for students remains elusive. From our reading we sense that in some cases the hope is that, by giving control over decisions to those closest to the process, teaching and learning will automatically improve. There is often little or no attempt to conceptualize or define what the improvements might look like.[8]

In line with the emphasis on local decision making, the idea seems to be that school improvement should derive from the dominant values in each community.[9] Whatever the community wants for its children is assumed to be in the best interests of students. There is something inherently appealing in that approach, but it is akin to saying that each local hospital should decide how to treat cancer, depending on what the patients and the community desire. Certainly we would want doctors to be sensitive to the needs and desires of individual patients and to the values of the community. We would urge them to involve patients in decisions that affect their health. But at the same time, we would hope that they would help their patients to make *informed* decisions by sharing with them the latest research findings regarding efficacious treatment.

It is this faith in research as a basis for decision making that seems to be missing from much of the SBM movement. We very much support the premise that local school constituencies need to be intimately involved in setting goals and in making decisions that affect the likelihood that those goals will be achieved, but we fear that such involvement has resulted in the belief that there is no body of knowledge to guide those decisions.

Some argue that the knowledge base in education is simply not the same as the knowledge base in medicine.[10] There is some truth to that, and it points to the need to support high-quality research in education the same way we support it in medicine. We need to make research findings available to education students just as we do for medical students. And we need to publish these findings in journals that educational practitioners read, just as medical research is published in journals read by medical practitioners. Of course, there is much to be learned about teaching and learning, but there is also much to be learned in medicine. We need to know more, but we should not discount what we already know about the kind of learning environment that enhances student motivation, challenges all students, accelerates their learning, and maximizes their potential. Teachers and parents are in a position to decide how that knowledge relates to their schools and their circumstances. But the knowledge needs to be an integral part of the decision-making process.

MOVING AWAY FROM A PIECEMEAL APPROACH

One of the criticisms of SBM is that teachers (and others involved in the process) are being asked to make disjointed decisions rather than decisions that are tied together by a common vision for change. A set of values or principles to guide change can help schoolpeople move away from the piecemeal approach and increase the likelihood that various reforms will be compatible. We join with others who are calling for pervasive changes in the culture of schools rather than add-on programs, a new instructional strategy, or the latest curriculum reform.

Seymour Sarason's most widely read and cited book, *The Culture of the School and the Problem of Change*,[11] sensitized us two decades ago to the notion that schools are cultures and that cultural change is complex and difficult because it involves questioning the assumptions and regularities of schooling. Those who are calling for pervasive changes in the culture of schools stress that reform is an ongoing process – "steady work"[12] grounded in the day-to-day experiences of students – rather than a series of sporadic attempts to respond to the latest educational innovation. Unfortunately, school reform has continued to stress one change at a time, without considering the specifics of context and culture.[13]

Now the calls for examining and changing the culture of schools are increasing, although the language may vary. Some are stressing the need for "second-order" changes in the structure and culture of schools;[14] others are calling for an examination of the "deep structures" of schooling.[15] Michael Fullan and Matthew Miles say that we need both "restructuring" and "reculturing."[16] Jeannie Oakes and Martin Lipton, in discussing the recent movement to "detrack" schools, conclude that a culture of detracking is more important than the specific alternative or implementation strategy chosen.[17] They stress that attention must be paid to the philosophies, values, and beliefs that underlie tracking practices. If the prevailing school norms support tracking, then efforts to detrack schools will be undermined. But how can the prevailing school norms be changed? Certainly SBM is central to this type of change. The constituencies in schools are part of the culture, and the culture is unlikely to change unless the thinking of those constituencies changes.

"Yo, Mrs. Wilson! Remember me, Fred Mooney – the one who looked out the window all the time?"

USING SBM TO CHANGE THE SCHOOL CULTURE

SBM appears to be working in a number of school reform efforts that aim for pervasive changes in the culture of schools. We point, for example, to Henry Levin's Accelerated Schools and James Comer's School Development Program.[18] Each of these projects allows for – indeed, encourages – different approaches to improving the learning environment, depending on the needs and perceptions of local constituencies, but at the same time there is a core set of values that defines the aim of reform. Comer's program provides an excellent example of involving local constituencies in real decision making, while using child development theory as a guide. We would say that SBM is an essential component of these reform efforts, and yet those who criticize SBM and forecast its demise rarely point to these examples of the successful use of SBM.

These programs happen to be based on partnerships between researchers and practitioners. It should be pointed out, however, that school reform efforts that are initiated at the state or local level without the direct involvement of theoreticians or researchers can also be grounded in research and make explicit statements about the aims of teaching and learning. We were recently asked by a state department of education to critique a concept paper that is to be used to redesign schools for early adolescents. It is quite a remarkable document – very much up-to-date in terms of the research that is reviewed and the recommendations that are made. SBM is an integral part of the plan, but it is seen as a process and not as an end. There is an emphasis on student outcomes and an articulation of principles that should guide change. The state plans to provide grants to schools that come up with proposals for change that reflect these principles. Whether this approach will result in substantive change to the culture in those schools rather than piecemeal reform remains to be seen.

MANDATING SBM AND SCHOOL IMPROVEMENT

The question of how state departments of education can effectively promote the redefinition and reformation of the school culture is one worthy of much discussion and debate. Many states are now mandating both site-based management and school improvement.[19] That bottom-up decision making is being mandated top-down is ironic, to say the least. A colleague who is studying the role of states in facilitating change confided to us recently that in some cases SBM is undermining goals set forth by state departments of education. He gave the example of a state that is encouraging schools to move toward a whole-language, literature-based approach to reading. Teachers in some schools, exercising their new power, voted to return to using basal readers and phonics workbooks. This situation illustrates how thorny an issue it is to decide whether change is to be guided by research and theory or whether it is to reflect the desires of certain local constituencies.

In the next section we will describe how we worked with constituencies at both the elementary and middle school levels in a local district to help change the nature of the school culture. But first, by way of contrast, we would like to describe the efforts that one of those schools had already made, before our collaboration began, to respond to a state mandate for school improvement.

To comply with the law, a school improvement team was selected by the assistant principal and given released time to attend a series of workshops. At the workshops, the correlates of effective schools served as the basis of much discussion.[20] One of the teachers on the team recalls that they spent considerable time learning how to develop consensus and how to write a mission statement (the first task of the teams). After months of deliberation, this message is now posted on the wall in every room in the school: "Everyone at our middle school will provide a safe and challenging environment for students so they may experience academic, emotional, physical, and social growth for their future as responsible citizens."

The next task for the team was to develop annual goals consistent with the mission statement and to outline specific steps to reach those goals. This assignment represents a well-meaning attempt by state educators to ask teachers and administrators to reflect on their vision for their schools and then to propose specific methods for working toward that vision. The problem is that the mission statement developed at this school (much like others we have seen) does not provide a clear direction for change. Almost any goal could be said to be consonant with this vision. Examples of goals that the team came up with (there are seven in all) include posting the mission statement throughout the school and community, developing a standardized format for student papers, developing a study skills program for all students, and developing a schoolwide homework policy.

This team worked hard and long to develop their mission statement and goals. But we come away from them knowing very little about what the school stands for or how policies and practices should be changed to reflect the mission. Teachers who participated in the process tell us that their efforts did not result in any substantive change in the day-to-day functioning of the school. We are not in any way being critical of this school or district or state. Understanding why this approach was not particularly effective can help with the design of more successful programs.

Basing school improvement on the findings of effective schools research raises some questions about the nature of the principles that are used to guide change. The widely disseminated list of correlates of effective schools describes a learning context with the following characteristics: the environment is safe and orderly, there are high expectations for student success, principals act as instructional leaders, there is a clear and focused mission, students spend significant amounts of time-on-task, student academic progress is frequently monitored, and home/school relations are nurtured.[21] Do we want to increase time-on-task if the tasks are worksheets and dittos? Does more frequent monitoring of academic progress mean more testing on dates and facts? Do we hire police officers to maintain a safe and orderly environment? Is a clear and focused mission more important than the nature of that mission? What do these schools stand for, where are they headed, and how can school policies and practices be changed to move them in that direction? What matters in a school goes beyond agreeing on a list of magic words and treating correlates as if they are independent ingredients in a recipe for effectiveness.

Take, for example, the assertion that teachers in effective schools have high expectations for student success. Some approximation of this notion can be found in many of the mission statements that we've read. Does the posting of this ideal mean that teachers with low expectations will change their beliefs? In the same schools that post such statements, students may be grouped into five ability levels for math, members of the honor society may receive special resources and privileges, and underachieving students may be given low-level, repetitious tasks to master. In our discussions with teachers, many of them tell us that they work very hard to convey high expectations to students. They try to be sensitive to the content of the messages that they provide to individual students in the classroom. But there seems to be less sensitivity to the messages that are conveyed through schoolwide policies and practices.

Our work is concerned with these messages. Ours is a theory-based school reform program that empowers teachers to change schoolwide policies and practices in a way that redefines the meaning and purpose of schooling.

COLLABORATING TO CHANGE THE SCHOOL CULTURE

With support from the National Center for School Leadership, a team of researchers from the University of Michigan approached a local school district in the late fall of 1990 with a proposal to work with that district to improve its schools. The premise at NCSL is that, by influencing the nature of the school culture, school leaders can have an impact on students' motivation and investment in learning.[22] The proposed program was described as a collaborative effort to review and revise school policies and practices in order to change the nature of the school culture and thereby enhance the motivation and learning of students, particularly those considered to be "at risk."

The families in this district are largely "blue collar"; many parents are involved in some way with the auto industry. The recent recession has resulted in widespread layoffs, causing serious disruption to many of the families. Approximately 25% of the students qualify for free or reduced-fee lunches. There are six elementary schools, two middle schools, and a high school in this district.

We explained that a leadership team from one elementary school and one middle school would take primary responsibility for initiating and sustaining the program in their schools and that these leadership teams would work closely and continuously with the team from the University of Michigan and the rest of the school staff. Comparison schools at both the elementary and the middle school levels would be recruited for research purposes but would not be engaged in the collaborative change program.

In describing the theoretical framework that would guide the changes, we talked about the effect of the school culture on students' investment in learning. Students quickly come to understand what their schools stand for and what is valued. In many schools students perceive that demonstrating ability is the main goal and that how they stand in relation to their peers is the measure of their success. This is a school culture that emphasizes relative ability and comparative performance and is, in our terms, "ability focused." By contrast, in some schools (all too few), students come to understand that what is valued is mastery, hard work, taking on challenging tasks, and making academic progress. Competition and comparison with peers are discouraged. For purpose of contrast, we call this kind of school culture "task focused." In reality, schools fall somewhere along a continuum between these two poles or provide mixed messages — but too often, particularly at the secondary level, the culture stresses and rewards the *demonstration* of ability rather than the *development* of ability.

The many policies and practices that characterize a school determine where it falls on the continuum between an ability focus and a task focus. Carole Ames, who has been a pioneer in this area, has worked with teachers to develop task-focused (she calls them "mastery-focused") cultures within their classrooms. Her research documents the positive effects on children, particularly at-risk children, of being in a task-focused learning environment.[23] Many other researchers have found that children who pursue task-focused goals try harder, take on more challenging tasks, persist longer, handle failure better, are more creative, and in general exhibit more adaptive patterns of learning than children who pursue ability-focused goals.[24] Ames stresses to teachers that a task-oriented classroom is not dependent on a single set of strategies or a particular instructional method; instead, it involves a constellation of strategies that are conceptually related. She urges teachers to think broadly about change rather than focus on one aspect of the learning environment and to develop a range of classroom strategies that are conceptually consistent with a task or mastery focus.

Ames' work with teachers has been very successful. The difficulty is that students who are in a task-focused classroom one year may move to an ability-focused classroom the next year. In addition, school-level policies and practices may conflict with or undermine task-focused strategies that individual teachers are implementing in their classrooms. Thus researchers at NCSL decided to work with school leaders to examine and change policies and practices in the school as a whole.

THE ROLE OF LEADERSHIP TEAMS

Although this change program has never been identified with school-based management, it is very much within that tradition: teacher leaders are at the heart

Moving away from an ability focus and toward a task focus need not cost significantly more money.

of this reform effort. During the three years of the project, an increasing number of teachers have become involved in the process, and we have observed growing feelings of power and ownership. Although few parents have become members of the leadership teams, every effort is made to describe to all parents the reasons for the changes that are being made, to solicit their input, and to involve them in an evaluation of the effects of the program on their children.

From the beginning, we were particularly interested in hearing the leadership teams' honest reactions to the research and their questioning of the theory. We knew that it was possible that teachers would reject the theory as impractical and unhelpful. Although there was some initial resistance to "talking theory," teachers began to feel comfortable with the theory and to articulate it in a way that was jargon-free and rooted in their own experiences.

For example, in talking about the negative effects an ability focus might have on high-achieving students, one teacher described her decision not to take a difficult but interesting course in college because it might lower her grade-point average. In discussing the tendency of schools to compare student performance, one teacher said, "We don't do that at home with our kids. If we're trying to teach a child to ride a bike, we don't say, 'Your sister learned to ride more quickly,' or 'You're doing an average job of learning how to ride this bike.' Instead, we say, 'Hang on; pedal faster.' In other words, we focus the child on figuring out how to do the task and not on how he or she compares with other kids."

The leadership teams in the schools decide which policies and practices they want to examine and change. Just as Ames and her colleagues identified classroom strategies that influence the salience of a task focus, the leadership teams have identified the broad range of school policies, practices, and procedures that define the purpose of their schools and thus influence students' approach to learning. Policies and practices at the school level often dictate which materials and textbooks are used, how students are grouped, which students are recognized and on what basis, whether students compete or cooperate academically, if and how student autonomy is encouraged, and what methods are appropriate for assessing and evaluating students. Thus they provide strong messages to students about the purpose and meaning of schooling.

Our goal as researchers is to work with the leadership teams to examine and change a wide range of policies and practices in a way that will move the school as a whole toward an emphasis on mastery, problem solving, challenge, and academic progress and away from an emphasis on competition, relative ability, and comparative performance. This is an ongoing program; it will not end when we leave. These teacher leaders now know where they are headed, and they are in the best position to decide how to get there. We believe this is an example of the successful use of SBM as a process to reform schools.

MOVING TOWARD A TASK-FOCUSED LEARNING ENVIRONMENT

We are beginning to see evidence that the teacher leaders with whom we are working, in close consultation with the rest of the staff, are changing the culture in their schools. In the beginning they targeted specific policies and practices they wanted to examine and change, one at a time. For example, in the elementary school they spent several months developing a list of 13 "principles of recognition" that reflect an emphasis on mastery, effort, and improvement rather than on relative ability and comparative performance. These principles are used to guide both within-classroom and schoolwide recognition practices.

The teams are still targeting specific policies and practices and discussing them in depth, but now they are also questioning the day-to-day regularities and events that have defined their school for years. We hear them saying, "Why are we doing that again this year? That's not what this school is about anymore. We need to change that." The research-based framework that undergirds this reform effort provides a direct link to school policies and practices – and a direction to take in changing them. When school leaders commit to moving away from an ability focus and toward a task focus, they know where they want to head when they examine, for example, ability grouping practices, ways of recognizing and evaluating students, the use of remedial and gifted programs, the distribution of resources, or other regularities of schooling.

This is in contrast to the piecemeal approach to reform described earlier. Just before we started working with the middle school, the school improvement team solicited information from students and teachers regarding their most pressing concerns. This seemed to them a very reasonable first step in addressing school improvement. Students and teachers were pleased to be involved in the process and responded with lists of concerns and suggestions.

The assistant principal took on the task of organizing the many and diverse suggestions thematically. This proved to be difficult and time-consuming. Suggestions included providing students with more computer time and electives, increasing the number of counselors, eliminating "supervised study," and repairing the doors on the stalls in the girls' bathrooms, among many others. The absence of any process of theoretical integration meant that, with the exception of affordability, the merits of each proposal were difficult to evaluate. The most common response by the administration was to say, "Yes – that would be great. We agree. But where are we going to get the money?" Few of these suggestions were acted upon.

Moving away from an ability focus and toward a task focus, however, need not cost significantly more money. Recognizing students for effort and improvement should not cost more than recognizing them for getting higher grades than their peers. Grouping students on the basis of interest rather than on the basis of ability undoubtedly means providing teachers with new resources and exposing them to new ideas, but the cost should not be prohibitive. Moving away from traditional methods of assessment and toward approaches such as work sampling and portfolios can be done without large expenditures of funds. Some of the most important changes we have seen during the last three years involve changes in mind set, in definitions of success, and in goals for students.

EMPOWERING TEACHERS TO REFORM SCHOOLS

Teacher leaders who are examining and changing school policies and practices in order to move toward a task-focused school culture feel empowered. Why? We believe that one of the reasons is that they care deeply about the issues they are addressing. Although the focus of attention is usually on *who* makes decisions, it is equally important to consider *what* decisions are being shared.[25]

The National Education Association has called for teacher participation in "identifying the purposes, priorities, and goals of the school."[26] Unfortunately, teachers often perceive these decisions as being beyond their control. Teachers have not traditionally been involved in decisions about tracking, the design of report cards, the prevalence of gifted and talented programs or programs for at-risk students, the use of standardized tests, or the structure of the school day. Compare the goal of developing a standardized format for student papers with the goal of replacing standardized tests with portfolios and other methods of work sampling.

One of the reasons SBM is being questioned is that only occasionally have teachers had opportunities to become involved with decisions that they care passionately about.[27] Teachers may not wish to become embroiled in discussions about the school budget, scheduling lunch, or other organizational details that seem to them only remotely connected with teaching or with defining the purpose of their school. These are important concerns – but not, we sense, issues that can in and of themselves transform a school. What seems vital in the process is to make connections with the teachers' classroom lives and their conception of what teaching and learning are all about.

The experience of making meaningful change may also have heightened the teachers' feelings of empowerment. Many teachers are pessimistic about their power to affect schoolwide policy because they assume that this is beyond their realm of influence.[28] At the beginning of the project it was clear that teachers were not optimistic about the likelihood of success for this essentially bottom-up approach; they didn't believe that teachers in the district had ever had much of a voice in decision making, and they were also dubious about the reaction of administrators both in their schools and in the central office.

Our model involves teachers as leaders rather than as committee members to advise the principal.

Such feelings of powerlessness have now diminished. Our model involves teachers as leaders rather than as committee members to advise the principal. This type of role definition seems to be a prerequisite for successful reform projects.[29] Our teachers told us horror stories about the effects of standardized testing on early elementary children but perceived initially that there was nothing they could do to alter the situation. They are now working actively to propose alternative ways to document the social, emotional, physical, and academic accomplishments of young children. They came to realize that traditional report cards were an anachronism in the new multi-age classrooms they had created but said, "They'll never let us change the report cards." They did.

Middle school educators asked over and over again, "Will the schedule let us do this?" – as though the schedule were an independent, all-powerful entity. In truth, at one point we feared that the intricacies of scheduling might undermine the shift to a more task-focused learning environment in the middle school. After more than a year of meeting, discussing the theory, and examining existing policies and practices, the middle school teachers came up with a number of concrete changes they wanted to make. They left in June believing that the schedule in the fall would allow them to organize themselves and their students in a way that would facilitate the move to a more task-focused environment. Many teachers wanted to work in teams and to develop interdisciplinary units. Some wanted to share students within blocks of time rather than divide the day into 50-minute periods. Others wanted the same students for several periods, agreeing to teach and to integrate several subjects and also to serve as advisors to these students. Such reorganization was seen as a way to facilitate the shift to a more task-focused learning environment. It would allow them to approach academic tasks in new ways, to expand the use of cooperative learning, to recognize and evaluate students differently, and to use time more creatively.

There was great disappointment and disillusionment in September when most of these requests were denied because they could not be worked into the schedule. Evidently issues such as using male teachers to monitor lunch periods, scheduling band at a time during the school day when all interested students could attend, and providing special programs for the gifted and talented were given a higher priority than facilitating the new vision. Many teachers who had been active members of the leadership team expressed great frustration and stopped coming to meetings. Those who did come spent weeks putting together a detailed flow chart describing exactly what steps would be necessary to bring a proposal for change to fruition.

Then a remarkable event took place. One of the teachers who had been a particularly effective member of the leadership team invited us and interested staff members to attend a meeting in his room to discuss the possibility of setting up a school-within-a-school. This meeting was well-attended, and the teachers seemed energized and resolute. We would like to think that their experiences on the leadership team contributed to their determination to provide a different focus for students and to their realization that they could have an influence on moving toward that new vision. They see themselves as more than members of a school improvement team tinkering with the wording on a school mission statement. They have had the experience of meeting together regularly, sharing information, debating issues that are vital to them, and developing plans. They are school leaders. The school-within-a-school is now in place, and, within that structure, teachers are incorporating task-focused policies and practices.

WHEN WE first approached our schools with a plan to collaborate to change the nature of the school culture, we did not think of it or describe it as "site-based management." Yet it seems clear that SBM is the process being used to bring about change. We are proponents of SBM and view it as an indispensable mechanism for school change. At the same time we can understand the growing frustration and disillusionment surrounding SBM – especially when it is thought of as an end in itself and not as a process. It is easy to see how some schools could adopt the apparatus of SBM and declare their teachers to be "empowered" when there is no change of any consequence for students.

Our model for school reform would make little sense without participatory governance. Although the primary goal of our collaborative efforts is to provide a task-focused environment for students, there is also a dedication to providing a similar environment for teachers – an environment that values and supports hard work, the acceptance of challenging tasks, risk-taking, and the promotion of growth. Rather than abandoning SBM, we need to learn under what conditions it works to promote substantive school reform.

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Including School Finance in Systemic Reform Strategies: A Commentary

by Allan Odden

School finance is once again a hot topic across the country. Slow economic growth has caused the public perception of declining school funding, while some charge that education outcomes do not justify the money that *is* being spent. States across the nation are dealing with a brewing tax revolt. And court cases challenging school funding are multiplying rapidly.

In spite of the current turmoil in education finance, reform remains a priority at both the state and federal levels. The ambitious education goals agreed upon by former president Bush and the nation's governors are being supported by President Clinton. These goals are the foundation for the administration's Goals 2000 program—a program that embraces the concept of "systemic reform." Also, at least 45 states have developed or proposed policies based on the systemic reform approach.

This issue of *CPRE Finance Briefs* takes a look at the school finance issue and proposes that education funding be tied more closely to systemic reform initiatives. It next describes past trends in school finance and current challenges to traditional education funding sources. Policy implications of these changes are presented, followed by a discussion of possible components of a finance system based on systemic reform. The brief draws on a published article[1] as well as continuing CPRE Finance Center research on school-based management.

Past Trends in Education Funding

A look at school finance for the future requires knowing the facts about education funding of the past. The fact is that education funding—nationally and in most states—has been rising quite consistently since World War II. Table 1 shows inflation adjusted dollars per pupil in 1960, 1970, 1980 and 1990. Each decade, funding rose in substantial terms: 69 percent in the 1960s, 22 percent during the 1970s and 48 percent in the 1980s. Part, but not all, of the funding increase was for new services for increasing numbers of poor, handicapped and other special needs students. Even in the tax limitation and supposedly lower government spending era of the 1980s, real dollars per pupil for the schools rose by 48 percent.

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[1] Odden A. Forthcoming. "Decentralization Management and School Finance." *Theory into Practice.*

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FB-04-5/94

This pattern of increase, which equals about 2.2 percent a year over this 30-year time period, has generally been maintained during the beginning of the 1990s. Despite the sluggishness of the current economy, the figures in Table 2 show that per pupil education spending on a national basis has exceeded inflation each year in the 1990s so far, although not by much. According to a recent U. S. Department of Education report, public elementary and secondary education spending will hit $295 billion in 1993-94, a 47 percent increase over the previous 10 years—after adjusting for inflation. Real per pupil expenditures for current operating purposes are estimated to be $5747 in 1993-94. While school funding varies dramatically by state and district—with not all states and districts experiencing funding increases—the overall numbers nevertheless tell a national story of school financing that is quite contrary to public perception.

These patterns of systematic increases in education funding need to be recognized and better understood by the nation's political and education leadership as new education program and finance policy is forged during the remainder of this decade.

While the overall picture is one of rising resources, funding is scarce in some states and many urban school districts. California is a good example. That state struggled to maintain an even level of nominal dollars per pupil over the past three years and level per pupil funding is an optimistic scenario for the next 2-3 years as well. Thus, inflation will erode California's educational resources. Since California's school population is very diverse and the state spends considerably below the national average, school finance in that state does not follow the more generous national trends.

Many big city districts also face severe fiscal constraints. But, while nearly all urban districts have high concentrations of low-income, language-minority and handicapped students that require substantial extra educational resources, many urban districts spend substantially above state average spending levels. In other words, although nearly all big city districts struggle to maintain adequate school funding, not all are extremely poor or on the low end of the expenditure spectrum.

Finally, because of the inequities caused by use of local property taxes as a major source of school revenues, nearly all states have a combination of property-poor and low-spending districts geographically close to property-rich and high-spending districts, a systemic inequity that has long plagued the fairness of the American education system.

Nevertheless, as the nation's education and political leaders face up to the rising challenges of the education system, the overall reality is that, historically, the country has always been willing to increase the dollars for its schools.

Challenges to School Funding Sources

Only time will tell whether the 1990s will be as fiscally generous to the schools as previous decades. The federal government predicts that education funding will rise by another 43 percent between 1993 and 2003—after adjusting for inflation, largely based on historical patterns of

Table 1: Education Funding Per Pupil, 1960 to 1990 (1990 dollars)

	1960	1970	Change, 1960-1970	1980	Change, 1970-1980	1990	Change, 1980-1990
Real Dollars Per Pupil	$1621	$2743	69%	$3345	22%	$4960	48%

Source: National Center for Education, *Digest of Educational Statistics, 1993.*

Table 2: Education Expenditures Per Pupil in the 1990s (1992-93 dollars)

	1989-90	1990-91	1991-92	1992-93	1993-94	Change, '89-90–'93-94
Real Expenditures Per Pupil	$5570	$5582	$5645, est.	$5721. est.	$5747, proj.	3.2%

Source: National Center for Education Statistics.

growth and traditional assumptions about the course of the economy. But there are some indications that this might be an overly rosy prediction.

First, one source of increased revenues in the 1970s and 1980s—the state—may not be able to increase school funding during the 1990s. Indeed, the shift of funding from local to state sources seems to have stabilized in the late 1980s with states providing about 50 percent of revenues, locals about 44 percent and the federal government about 6 percent. Actually, the state share dropped a couple of points during the past few years while the local share rose. Today, moreover, state tax increases are generally earmarked not for schools but for closing state budget gaps, building prisons and funding Medicaid.

Recently, Colorado and Oklahoma joined the growing list of states that limit state expenditures. These proposals are likely to lead to a reduction in state spending, which also usually produces fewer school revenues. The more these types of state and local measures are approved, the more tenuous becomes the ability of states to hike education revenues.

Second, the federal government is a potential but unlikely source of new education revenues; it already spends much more than it collects and any significant new spending likely will occur in health rather than in education.

Third, there is a brewing revolt against rising local taxes. Nationally, local taxes have been the fastest rising revenue source in the country since 1985, outpacing both state and federal taxes. Local taxes include not only increasing property taxes, but also many new local sales and income taxes approved over the past decade. As a result, local taxes in the aggregate have been rising at rates above both inflation and personal income.

Most of the rise in local taxes has been pumped into schools. In the 1980s, many states, particularly southern states, saw the property tax as an untapped revenue source, and increased property tax rates as a major component of their education reforms.

One clear indication of current dissatisfaction with the local taxes is the 1993 law enacted by the Michigan legislature which eliminated the local property tax as school revenue. That action cut about $6.3 billion from Michigan's total $10 billion public school budget. In March 1994, Michigan voters approved Proposal A, which replaced most lost revenues by an increase in the state sales tax from 4 to 6 percent and by an increase in the tax on cigarettes from 25 to 75 cents per pack.

In Wisconsin, legislators have enacted a law that cuts property tax funding for schools by one-third and charges a panel with developing a way to replace the lost revenues. In a somewhat less drastic initiative three years ago, Oregon taxpayers enacted a substantial reduction in property taxes that was to be phased-in over five years; the lost property taxes were to be covered by new state revenues. This is the third year of the phase-down, but neither the legislature nor the people have approved a sales tax to cover the lost revenue; as a result total education revenues are down.

Further, California's Proposition 13 continues to gut education revenues in the Golden state. But California voters continue to turn down initiatives that would modify Proposition 13 and make it easier to raise more local property taxes.

Minnesota, Nebraska, New Hampshire, Pennsylvania, and South Carolina are also exploring reforms to eliminate local property taxes as a school revenue source.

These events suggest that the country may be experiencing a round of property tax relief and reform like that of the early 1970s. However, the degree of fiscal freedom today for reducing property taxes is less than in the 1970s. In 1973, many states received their first federal revenue sharing dollars, and thus had a "free" revenue source they could use to cut local taxes. Other states enacted new sales and income taxes, or raised their historically low rates for those taxes, and had new money to reduce local property taxes. Unfortunately these revenue options are not generally available today.

States such as Oregon, which lacks a sales tax, and Texas, which does not have an income tax, could enact such a new tax. But today the proceeds might be used more to reduce the tax burden on the other two taxes, particularly the property tax, than to increase funding for any function, such as education. This happened recently in Connecticut when it finally enacted an income tax.

These dilemmas could portend a "flattening" of the public sector, or at least a lower increase than has been experienced during the past. The result would be much slower growth—and potentially even decline—in school revenues.

Only time will tell whether such a scenario becomes reality. But what can be predicted with some certainty is slower growth in education revenues caused by the overall sluggishness of the national and most state economies, together with stiffened resistance to raising tax rates and increasing property tax burdens. Until economic growth picks up, tax revenues flowing into government coffers—including those of school districts—could be in very limited supply.

Push for Growth in Education Productivity

Despite the less than optimistic prediction for future school revenues, the education system is under intense pressure to hike the achievement of all students dramatically. Not only might pressures to reduce and reform the property tax need to be accommodated within a smaller purse, but also schools might still need to improve student achievement a great deal within this limited purse.

The national education goals call for high proficiency in thinking and problem solving in core content areas for *all* students, a level attained by only a small percentage of students today.

According to the NAEP (National Assessment of Educational Progress) Fall 1993 results, less than 10 percent of students were achieving just "acceptable" levels of math and reading let alone high levels. Indeed, even before the recent demands for substantially higher student achievement, the realization that funding has been consistently rising while achievement has remained flat led some to suggest that education had a significant productivity problem. The productivity problem must be faced, because more than increased money is needed if student achievement is to rise.

Thus, the future challenge for education will be to link improvements in school finance to local tax reform and, simultaneously, to produce high levels of achievement for all students, with school budgets that grow more slowly or even decline in some states over the rest of the 1990s.

Pressure From the Courts

Legal pressures reinforce this call for improved school quality. School finance litigation and court decisions that overturn state school finance structures are creating intense pressure both to improve education quality and reform unfair school finance structures. Today, there are school finance cases being developed, in trial or recently decided, in over 25 states in the country. The level and scope of school finance litigation is at an all time high.

State supreme courts in Kentucky, Massachusetts, Montana, New Hampshire, New Jersey, Tennessee and Texas have ruled state school finance systems unconstitutional already in the 1990s. In September 1993, the New Jersey court overturned the expensive New Jersey school finance reform enacted in 1991, writing that more money was needed by the low-spending districts. Lower courts in Alabama, Minnesota, Missouri, and Rhode Island have found systems unconstitutional (although the Minnesota Supreme Court recently overturned the lower court's ruling).

All the court decisions require states to reduce, if not eliminate, fiscal disparities caused by unequal distribution of the local property tax. No state has addressed this objective in the past without pumping a significant level of new state dollars into the education funding system. With caps being placed on state revenues and citizens resisting state tax increases, traditional school finance reform could be much more complicated in the 1990s.

But the court decisions today seem to be even more aggressive than in the past about reducing expenditure per pupil differences and requiring large hikes in the

expenditure levels of many if not most districts. The recent decision in Alabama found the entire state system inadequate and mandated a higher level of funding for all districts, a level that would enable each district to meet the state's education requirements. Legislative response will be very difficult without a new and large pot of money.

In New Jersey, the original and the recent supreme court decision in the *Abbott v. Burke* case required the state to bring the expenditure per pupil of the 28 "special needs" districts, which enroll 25 percent of the state's students, up to the same level as those of the most affluent and highest spending districts in the state. Meeting the court requirement would add significantly to the cost of school funding. The 1993 court ruling, which undergirds this original court requirement, comes after a three-year struggle in New Jersey around raising state taxes to meet the court stipulation. How New Jersey will resolve these dilemmas is unknown.

Finally, nearly all recent court decisions contain language about the evolving high-skill needs of the modern economy and the need for the education system to produce students with a much higher level of cognitive capabilities. While no decision has explicitly required a minimum student achievement level for compliance with the court mandate, the trend certainly is toward that end. The response to the Kentucky decision, which overturned the entire education system—curriculum, governance and finance—stipulated high student achievement standards as the primary goal of both program and finance reforms. The case in Alabama required similarly high outcomes as did the recent Massachusetts case.

In short, despite the potential scarcity of education revenues, courts are maintaining pressure to eliminate the fiscal disparities that have plagued state school finance systems, and appear to be moving toward requiring minimum proficiency levels on thinking and problem solving tasks for *all* students.

Implications for Policymakers

Political and education leaders who want to be ahead of, rather than goaded, by complicated court rulings might take these trends seriously and begin restructuring their finance systems in ways that link more clearly the school finance structure to student achievement results. Indeed, given the flat and inadequate level of student achievement, there are pressures from several sources to make improved student learning the main goal of all education policymaking. Aligning the school finance structure with a set of policy initiatives designed to improve student learning is an important piece of a fast-growing education reform movement—systemic education reform.

Key Components of Systemic Reform

Nationally and in many states, systemic reform is now identified as a potentially powerful way to produce higher levels of student achievement. Briefly, systemic reform includes the following key components:

- *ambitious student outcomes*

The underlying concept is that *all* students should be able to perform at high levels on thinking and problem-solving skills. The system shifts from a focus on inputs to a focus on results.

- *a series of coherent policies at all government levels supporting student outcome goals*

The policies should include: (a) high quality curriculum standards such as those developed by the National Council of Teachers of Mathematics, coupled with new and revised instructional materials; (b) new forms of performance assessment, strongly linked to the curriculum standards, that indicate what students know as well as what they can do; and (c) substantially expanded professional staff development along with dramatically revised pre-service teacher training

- *restructured management and governance, including site-based implementation*

Critical aspects of implementation should devolve to the organizational unit that actually delivers educational services—schools. Key service providers—teachers—should participate in devising the program strategies to be implemented.

The most effective strategy to improve performance—in both the private and public sectors—has been to set clear performance targets at the top of the system, flatten the organizational structure, move decision-making down to work teams actually providing the service, and hold them accountable for results (Barzelay 1992; Galbraith et al. 1993; Lawler 1992). Indeed, high involvement/decentralized management is *the* rapidly rising organizational strategy used in the non-school, public and private sectors of our economy to enhance organizational effectiveness and productivity. Furthermore, especially important given the uncertainty of future education resources, high involvement, decentralized management has been used successfully to improve performance in circumstances when funding is increasing as well as when it is not.

This decentralization strategy works best for organizations whose work is complex, is best done in teams, and exists in a rapidly changing environment (technically and otherwise). These traits characterize education. Teaching is an intellectually complex task, is best accomplished when it is done collegially, faces uncertainty in its day-to-day tasks, and exists in a rapidly changing demographic and policy environment (Mohrman et al. 1992). Thus including school-based management as an organizational component of systemic reform is supported by analogies from other sectors.

High involvement management works only when information, knowledge, power over the budget, authority over personnel, and rewards are decentralized to the unit of service provision. Thus developing a sound educational finance system linked to a systemic reform appears to entail the following:

- a focus on the school as the key organizational unit
- devolution of power over the budget to schools
- decentralization of the personnel function to sites
- development of a comprehensive school-level information system
- investment of dollars in capacity development
- redesign of teacher compensation

School Finance and Systemic Reform

In the following sections we describe what a system of school finance based on systemic reform might look like. At this point, these designs have no direct empirical support, but they draw both from studies of effective management in the private sector and tentative findings about factors necessary for effective school-based management (Mohrman 1993; CPRE 1993a; Mohrman and Wohlstetter forthcoming; Wohlstetter et al. forthcoming; Odden and Odden 1994).

School-Based Finance Structure

One new direction might be to target education policy, including finance policy, more directly on *schools*—rather than *districts*. States now give money to districts but not schools. A school focus not only fits with school-site implementation, but also public school choice, charter schools, the Clinton administration's America 2000 program and several other school-based policy initiatives.

School-Controlled Budget

The second aspect of a new school finance structure would be to move power to the school by devolving budget authority. A large portion of dollars would be budgeted in a lump sum to schools. The more radical approach would be for states, or perhaps districts, to fund schools directly. A less dramatic approach would be for states to follow the lead of the United Kingdom and by law require that 85-90 percent of all dollars—both general and categorical—now allocated to districts be sent to schools in a lump sum. While the district could retain some functions and budgetary power—in transportation, capital facilities, for example—schools would need to control at least the instructional budget, which comprises about 60 percent of most school budgets.

In school-based allocation schemes, three major components of funding might be considered. To start, each school could receive an equal base level of dollars per pupil. The preferred approach would be for the state to determine the base spending level. If a state adopted the new legal remedy for school finance inequities proposed by CPRE researcher Bill Clune (CPRE 1992), it would set a high base per pupil funding for all schools in the state.

This high level could be overreaching as a target for all schools. A somewhat less ambitious target would be the state's previous average expenditure or the 50th percentile, a level that probably would allow schools in non-metropolitan districts to provide a high quality education program. However if this lower base level were selected, a second tier equalized plan should also be added for schools that want or need to spend above that level, either because they face higher prices, have greater student need, or have a higher taste for education. Such a tier could be linked either to the property tax or to the state's income tax. The idea would be to allow any school or district wanting to spend above the common base to do so, and through a power equalization

program to make the additional spending approximately the same for equal extra tax efforts. The state could "cap" this extra expenditure at some level, perhaps 50 percent above the base.

Second, some schools have poor children who need additional services in order to learn the core curriculum. Thus, the base allotment should be augmented by a substantial amount for every poor child. The dollar amount for this add-on should be sufficient for the school to raise the achievement of low-income children to acceptable levels of proficiency on thinking and problem-solving tasks. One program that has produced impressive results in student learning is the Success for All Program created by Robert Slavin at Johns Hopkins University. The cost of that program is close to $2000 per poor child. Thus an add-on for low income children could run an extra $2000 per child (Clune 1993).

Third, it is well documented that the purchasing power of the educational dollar varies across districts and labor market regions. Equal funding per pupil discriminates against urban districts, where prices are higher, and advantages non-metropolitan districts, where prices are lower. Thus, states should modify all dollar allocations by some regional price index that adjusts for the varying purchasing power of the educational dollar. While the technical methods for creating these adjustments are relatively straight forward, the politics of getting them enacted into formulas admittedly are difficult.

This finance structure would produce fiscal equity across not only school districts in a state but also across schools. It would also include finance as part of an overall systemic strategy to help schools produce high levels of student learning, not as part of a fiscal equity agenda.

School authority over personnel

The ability to recruit, select, develop, socialize and deploy personnel resources is also important to decentralized, high-involvement management. Individuals need to fit into each work group on both a technical expertise and social norm level. Sites, thus, would need to power to select both the mix of personnel at the school and the specific individuals for each job position.

School-Based Information System

The data implication of school-based financing and decentralized management is a school-based fiscal accounting structure that would provide sites with detailed information on revenues, budgets and expenditures by object, function and program. At a minimum, this would technically mean moving current education fiscal accounting information systems from the district to the school level. It also would require information on student performance, periodically over the course of the year; feedback from parents and the community on school satisfaction; benchmark information with schools in similar communities; and up-to-date information on the socio-demographics of the school context. For the most effective implementation, it would entail developing an on-line, personal computer-based, interactive system that would provide each school with accurate, up-to-date fiscal information, as well as all of the other data on teachers, students and the community.

Investment in Knowledge Development Activities

Effective decentralized management requires development of a new and wide range of knowledge and expertise for faculty in a school. This requires substantial investments in professional development and training. Training would need to focus on the knowledge and skills needed to teach the new thinking-oriented curriculum, and on the expertise needed to engage in school-based fiscal decision-making and budgeting. While lump-sum budgeting could allow school faculty to allocate new funds for professional development, that state also could set-aside two to four percent of the total school revenue for continuing professional development. This year, Minnesota and Missouri targeted two percent of their foundation formula for ongoing training.

Use of this money would need to switch from one-shot workshops, which typifies too much of education staff development, to more intensive training emphases. Sending teams of teachers to intensive summer institutes, developing a trainer of trainer structure, and supporting teacher involvement in professional networks are new types of strategies that may have better success in developing new and complex teacher expertise that is used successfully in the classroom (CPRE 1993b).

Redesigned Teacher Reward and Compensation System

This dimension of new school finance would include changes in the reward or compensation structure for teachers. It would entail changing the base of teacher compensation from the indirect measures of education and experience currently used. One possibility would be to base compensation on direct measures of individual knowledge and skills, i.e., what teachers know and can do.

Such a structure also could include a salary increase for certification from the National Board for Professional Teaching Standards. In addition, a revised compensation system could include group-based school faculty performance awards, including bonuses for meeting improvement targets and cost-reduction gain sharing-programs (Lawler 1990). The latter components would require a separate budget.

I have co-authored several papers that outline in much more detail how such a new compensation structure could be designed, what the skill block components could include, and how to transition from the current to such a proposed system (Mohrman et al. 1993; Odden and Conley 1992).

Choice

School choice must also be addressed. The type of decentralization described above provides choice to educational professionals in how to accomplish education achievement targets. Different schools likely would take on different characteristics—some math and science oriented, some more humanities oriented, some using standard curriculum frameworks, others taking a more thematic approach, etc.

Some of these strategies might not be good for some children or liked by some parents. As a result, it would be inappropriate to require everyone to attend his or her neighborhood school. Thus choice of school, *at least within the public sector*, might be a component of a new design. Put differently, public school choice within and across districts is a side effect of dramatic school-based management and decision-making. Further, charter schools, which are growing in popularity, can provide perhaps even more choice. In short, a wide range of choice options should accompany the above approach to school finance and education policy reform.

In Minnesota, a set of comprehensive public school choice programs, including charter schools, has not only empowered parents but also has induced schools to pay closer attention to their parent and children customers. Schools now assess what they offer in terms of what parents want, and, in the main, parents want a quality curriculum program and high standards for student achievement. Further, although pressed for resources, schools responding to these new pressures are rethinking how they use current revenues and devising strategies for reallocating revenues to focus funding on core programs.

Deregulation

Another ingredient of such a new structure would be substantial regulatory relief. It is hard to unleash the creativity of school professionals to redesign educational services to produce higher and more ambitious student learning results, while holding them to all the federal, state, local and union contract rules and regulations that now govern and proscribe their behavior. A serious results-oriented system would de-emphasize regulations and focus accountability on what students actually learned.

School Finance Equity

A school-based finance structure could provide opportunities to expand significantly the level of fiscal equity in state school finance systems as well as the dimensions of resource equity that could be assessed. Financing *schools* could enhance fiscal equalization at both the district and site level. This is important because a just-completed study of California found that although the state had produced fiscal equity across districts, there were wide ranging inequities—fiscal, program, teacher quality and student achievement—at the school level (Hertert 1993).

At the school, moreover, equity concerns could move beyond measures of dollar equality and include the issue of whether all students have the quality of instruction needed to learn more ambitious material. The idea is that if the nation or a state implements new testing for students and uses the results to make important decisions for students—

whether to promote them to the next schooling level, admit into postsecondary education, or hire in the job market—then schools need to provide the curriculum resources to furnish students the "opportunity to learn" at the expected levels.

While defining opportunity to learn is a complex issue—philosophically, technically and statistically—its goal is to define a set of variables strongly linked to student learning, in addition to dollar equality Porter (1993), suggests three key school process variables:

- measures of the "enacted curriculum," i.e., the curriculum actually delivered and covered in the classroom.

- measures of the teaching strategies actually used. The high end of this measure would be strategies that engage students in problem solving and where students construct resolutions to problems and experiments.

- measures of curriculum-imbedded resources, such as computers, access to laboratories, laboratory equipment and manipulative in mathematics classrooms.

A study conducted by Porter and colleagues found it is possible to collect such data through periodic surveys, classroom observations, and a small number of case studies (Porter et al. 1993).

Conclusion

Although school funding has risen every decade during the past 30 years, several factors may be conspiring to limit growth during the 1990s. The sluggish economy is slowing growth in governmental tax revenues. Tax revolts also are brewing at both state and local levels. The Michigan legislature's elimination of the local property tax as a source of school revenues is one strong example. The result may be smaller increases or even decreases in education revenues. Nevertheless, the education system is under intense pressure from legislatures, the courts, the public and the business community to reform inequitable and unconstitutional school finance systems *and* to improve system outcomes—to graduate students who have mastered a level of cognitive expertise now achieved by only a small portion of today's students.

Normally, such reforms require substantial new money. That money might or might not become available. But reform to accomplish these achievement goals is required anyway.

Systemic reform is an emerging education reform strategy designed to accomplish this objective. Redesigning the school finance system to support systemic reform would align the finance structure to a program strategy that should increase student learning. Such a new education system would include ambitious student achievement outcomes, high-quality curriculum standards, and new performance-based testing systems. A finance structure to match could be school based and give schools power over the budget and hiring personnel; provide heavy investments in continuing training; include a school-based fiscal, achievement and demographic information system available in an on-line, interactive computer system; and restructure teacher compensation to pay teachers individually on the basis of their knowledge and skills, and collectively for what they produce in terms of student achievement.

The school formula structure should include: (1) a high base per pupil amount for each student (and a power-equalized second tier allowing schools to spend above the base if the base is set in the middle range of expenditures); (2) a substantial add-on for each student from a poverty background; and (3) a price adjustment for each dollar figure that would compensate for the varying purchasing power of the educational dollar. The system also would need a wide range of public school choice and substantial regulatory relief.

Such a new structure would formally connect the finance system to a program system designed to enhance student learning, could produce fiscal equity at both the district and school levels, and also could improve the productivity of the education system.

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Innovations are not quickly adopted by people at the same rate. Everyone brings a different background and attitude with them when they are introduced to a new or modified concept. An understanding of change is enhanced by being familiar with the following five categories: Innovators, Early Adopters, Early Majority, Late Majority, Laggards.

Innovators—1% to 3%

Usually the first 2.5 percent of the people who adopt an innovation are eager to try new ideas. These people usually possess more technical knowledge, are employed in high-risk occupations, link up with other innovators, sometimes at great distances, are willing to take risks, and are eager to try new ventures. Any organization wishing to gain early support for a new idea should tap the innovators. Usually almost immediate acceptance of the innovation will be forthcoming simply because it is a change from what has been done before.

Innovators, however, do not usually provide communication leadership that will encourage large numbers of people to accept the idea.

Early Adopters—13%

This group, the next 13.5 percent to adopt a new idea, differ from the innovators in that they are communicators. This group of people is looked to by others for opinions regarding the change. Early adopters are frequently part of the informal power structure of any organization. They are key communicators, and are respected for their judgement. They will not accept an innovation as rapidly as the innovator group. This group is the key group to work with in instilling new innovations. Managers and team leaders must know who the early adopters are and use this group as a communication link with the rest of the structure.

Early Majority—34%

Representing about the next 34 percent to adopt a new idea, this group provides the necessary numbers for majority. People in this group are usually joiners. They follow the lead of the early adopters, but are reluctant to accept a new idea too quickly. The main communication link of the early majority group is with the early adopters.

Late Majority—34%

Making up another 34 percent of the population, the late majority is skeptical and usually adopts an innovation only after social or peer pressure is applied.

Laggards—16%

The remaining 16 percent are the last to adopt an innovation. This group is very dependent on the past, is not receptive to change or those who advocate change.

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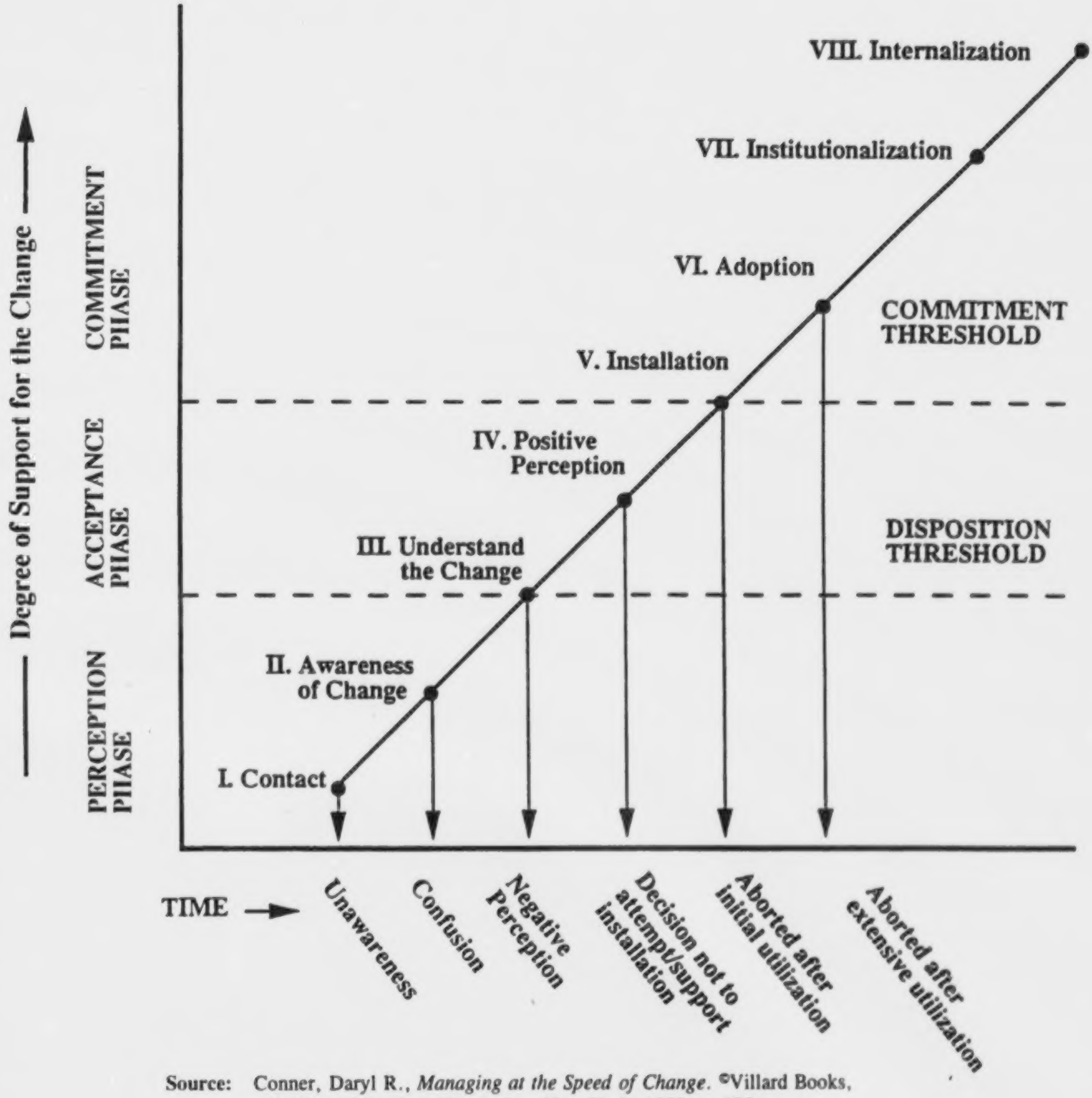
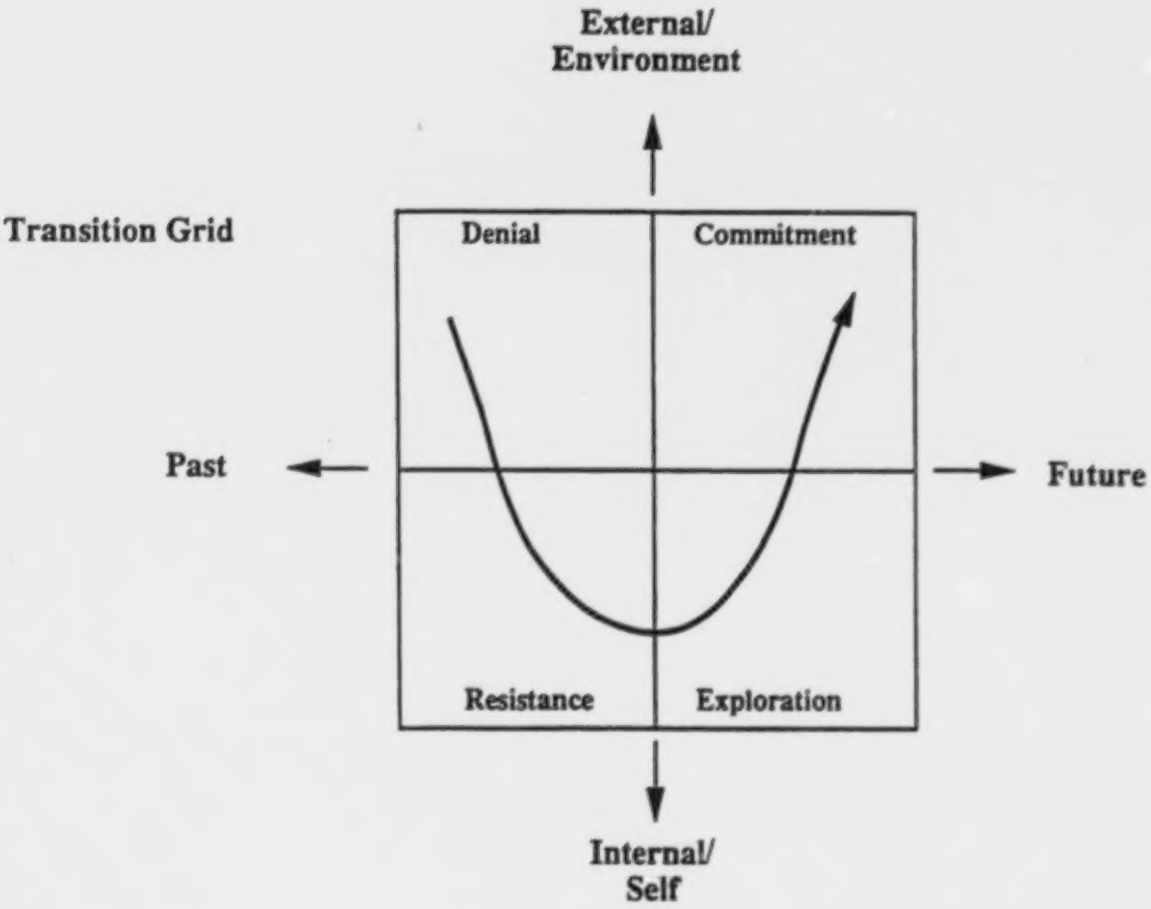
Stages of Change Commitment


Degree of Support for the Change →
COMMITMENT PHASE
ACCEPTANCE PHASE
PERCEPTION PHASE
VIII. Internalization
VII. Institutionalization
VI. Adoption
COMMITMENT THRESHOLD
V. Installation
IV. Positive Perception
DISPOSITION THRESHOLD
III. Understand the Change
II. Awareness of Change
I. Contact
TIME →
Unawareness
Confusion
Negative Perception
Decision not to attempt/support installation
Aborted after initial utilization
Aborted after extensive utilization

Source: Conner, Daryl R., *Managing at the Speed of Change*. ©Villard Books, a division of Random House, Inc. New York: 1993, p. 138. Reprinted with permission.

Phases of Transition Through Change


External/
Environment
Transition Grid
Denial
Commitment
Past
Future
Resistance
Exploration
Internal/
Self

Source: The Transition Grid ©Flora/Elkind Associates, Change program. From *Managing Organizational Change*, Scott, Cynthia D., and Jaffe, Dennis T., Crisp Publications, Los Altos, California: 1989. Reprinted with permission.

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Getting Reform Right: What Works and What Doesn't

There are as many myths as there are truths associated with change, Messrs. Fullan and Miles assert, and educators need to deepen the way they think about change. To that end, the authors analyze seven reasons change fails and offer seven "propositions" for successful change.

BY MICHAEL G. FULLAN AND MATTHEW B. MILES

AFTER YEARS of failed education reform, educators are more and more in the habit of saying that "knowledge of the change process" is crucial. But few people really know what that means. The phrase is used superficially, glibly, as if saying it over and over will lead to understanding and appropriate action.

We do believe that knowing about the change process is crucial. But there are as many myths as there are truths associated with change, and it is time to deepen the way we think about change. We need to assess our knowledge more critically and describe what we know. One needs a good deal of sophistication to grasp the fundamentals of the change process and to use that knowledge wisely.

We also believe that serious education reform will never be achieved until there is a significant increase in the number of people – leaders and other participants alike – who have come to internalize and habitually act on basic knowledge of how successful change takes place. Reformers talk of the need for deeper, second-order changes in the structures and cultures of schools, rather than superficial first-order changes.[1] But no change would be more fundamental than a dramatic expansion of the capacity of individuals and organizations to understand and deal with change. This generic capacity is worth more than a hundred individual success stories of implementing specific innovations. As we shall see, even individual success stories don't last long without an appreciation of how to keep changes alive.

Rather than develop a new strategy for each new wave of reform, we must use basic knowledge about the do's and don'ts of bringing about *continuous improvement*. In this article we present this knowledge in the form of seven basic reasons why reform fails – and seven propositions that could lead to success.

WHY REFORM FAILS

Schools and districts are overloaded with problems – and, ironically, with solutions that don't work. Thus things get worse instead of better. Even our rare success stories appear as isolated pockets of excellence and are as likely to atrophy as to prosper over time. We get glimpses of the power of change, but we have little confidence that we know how to harness forces for continuous improvement. The problem is not really lack of innovation, but the enormous overload of fragmented, uncoordinated, and ephemeral attempts at change.

We begin with reasons why typical approaches do not work. In our view there are seven basic reasons why reforms fail. Though each one has its own form, these seven should be understood in combination, as a set.

1. Faulty maps of change. It's hard to get to a destination when your map doesn't accurately represent the territory you're to traverse. Everyone involved in school reform – teachers, administrators, parents, students, district staff members, consultants, board members, state department officials, legislators, materials developers, publishers, test-makers, teacher educators, researchers – has a personal map of how change proceeds. These constructs are often expressed in the form of a proposition or statement.

1. Resistance is inevitable, because people resist change.
2. Every school is unique.
3. *Plus ça change, plus c'est la même chose.*
4. Schools are essentially conservative institutions, harder to change than other organizations.
5. You just have to live reform one day at a time.
6. You need a mission, objectives, and a series of tasks laid out well in advance.

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Illustration by Mario Noche

7. You can never please everyone, so just push ahead with reforms.

8. Full participation of everyone involved in a change is essential.

9. Keep it simple, stupid: go for small, easy changes rather than big, demanding ones.

10. Mandate change, because people won't do it otherwise.

People act on their maps. But maps such as these don't provide reliable or valid guidance. Some, like number 1, are simply self-sealing and tautological. Others, like number 2, are true in the abstract but totally unhelpful in providing guidance. Imagine if a Michelin guide book were to tell you that "each restaurant is unique," refuse to make ratings, and tell you that you're on your own.

Some, like number 3, have the seductive appearance of truth, though they are mostly false. It stretches the bounds of credulity to say that the schools we see today are no different from those of yesteryear or that all change efforts are self-defeating. Such maps are self-defeating. At their worst, they tell us that nothing really changes – and that nothing will work. On such self-exculpatory propositions as number 4, there's simply very little evidence, and what there is leads to the verdict of "not proven."[2]

Sometimes our maps are in conflict with themselves or with the maps of colleagues. For example, number 5 advocates the virtues of improvisation, while number 6 lauds rational planning. In fact, the literature on organizational change and a recent study of major change in urban high schools show that *neither* statement is valid as a guide to successful school reform.[3] The same appears to be true for propositions 7 and 8.

Still other mapping statements are directly contradicted by empirical evidence. For example, though number 9 looks obvious, studies of change have repeatedly found that substantial change efforts that address multiple problems are more likely to succeed and survive than small-scale, easily trivialized innovations.[4]

And number 10, as attractive as it may be politically, simply doesn't work. Indeed, it often makes matters worse. You can't mandate important changes, because they require skill, motivation, commitment, and discretionary judgment on the part of those who must change.[5]

Our aim here is not to debunk all our maps. Maps are crucial. But unless a map is a valid representation of the territory, we won't get where we want to go. Later in this article, we will outline a map that, we believe, corresponds well with the real territory of change.

We must have an approach to reform that acknowledges that we may not know all the answers.

2. Complex problems. Another major reason for the failure of reform is that the solutions are not easy – or even known in many cases. A number of years ago Arthur Wise labeled this problem the "hyperrationalization" of reform:

> To create goals for education is to will that something occur. But goals, in the absence of a theory of how to achieve them, are mere wishful thinking. If there is no reason to believe a goal is attainable – perhaps evidenced by the fact that it has never been attained – then a rational planning model may not result in goal attainment.[6]

The reform agenda has broadened in fundamental ways in the last five years. One need only mention the comprehensive reform legislation adopted in virtually every state and the scores of restructuring efforts in order to realize that current change efforts are enormously complex – both in the substance of their goals and in the capacity of individuals and institutions to carry out and coordinate reforms.

Education *is* a complex system, and its reform is even more complex. Even if one considers only seemingly simple, first-order changes, the number of components and their interrelationships are staggering: curriculum and instruction, school organization, student services, community involvement, teacher inservice training, assessment, reporting, and evaluation. Deeper, second-order changes in school cultures, teacher/student relationships, and values and expectations of the system are all the more daunting.

Furthermore, higher-order educational goals for all students require knowledge and abilities that we have never demonstrated. In many cases, we simply don't know how to proceed; solutions have yet to be developed. This is no reason to stop trying, but we must remember that it is folly to act as if we know how to solve complex problems in short order. We must have an approach to reform that acknowledges that we don't necessarily know all the answers, that is conducive to developing solutions as we go along, and that sustains our commitment and persistence to stay with the problem until we get somewhere. In other words, we need a different map for solving complex rather than simple problems.

3. Symbols over substance. In the RAND-sponsored study of federal programs supporting educational change, Paul Berman and Milbrey McLaughlin found that some school districts adopted external innovations for opportunistic reasons rather than to solve a particular problem. These apparent reforms brought extra resources (which were not necessarily used for the intended purpose), symbolized that action was being taken (whether or not follow-up occurred), and furthered the careers of the innovators (whether or not the innovation succeeded). Thus the mere appearance of innovation is sometimes sufficient for achieving political success.

Education reform is as much a political as an educational process, and it has both negative and positive aspects. One need not question the motives of political decision makers to appreciate the negative. Political time lines are at variance with the time lines for education reform. This difference often results in vague goals, unrealistic schedules, a preoccupation with symbols of reform (new legislation, task forces, commissions, and the like), and shifting priorities as political pressures ebb and flow.

We acknowledge that symbols are essential for success. They serve to crystallize images and to attract and generate political power and financial resources. Symbols can also provide personal and collective meaning and give people faith and confidence when they are dealing with unclear goals and complex situations.[7] They are essential for galvanizing visions, acquiring resources, and carrying out concerted action. When symbols and substance are congruent, they form a powerful combination.

Nonetheless, reform often fails because politics favors symbols over substance. Substantial change in practice requires a lot of hard and clever work "on the ground," which is not the strong point of political players. After several experiences with the dominance of symbolic change over substantive change, people become cynical and take the next change that comes along much less seriously.

Symbolic change does not have to be without substance, however. Indeed, the best examples of effective symbols are grounded in rituals, ceremonies, and other events in the daily life of an organization. While we cannot have effective reform without symbols, we can easily have symbols without effective reform – the predominant experience of most educators and one that predisposes them to be skeptical about *all* reforms.

Reforms also fail because our attempts to solve problems are frequently superficial.

4. Impatient and superficial solutions. Reforms also fail because our attempts to solve problems are frequently superficial. Superficial solutions, introduced quickly in an atmosphere of crisis, normally make matters worse.[8] This problem is all the more serious now that we are tackling large-scale reforms, for the consequences of failure are much more serious.

"For many years, you've been preparing to enter uncharted waters – and today you walk the plank."

Reforms in structure are especially susceptible to superficiality and unrealistic time lines, because they can be launched through political or administrative mandates. Two examples at opposite ends of the political spectrum provide cases in point. A recent study of the impact of statewide testing in two states found that, while new testing mandates caused action at the local level, they also narrowed the curriculum and created adverse conditions for reform:

> [C]oping with the pressure to attain satisfactory results in high-stakes tests caused educators to develop almost a "crisis mentality" in their approach, in that they jumped quickly into "solutions" to address a specific issue. They narrowed the range of instructional strategies from which they selected means to instruct their students; they narrowed the content of the material they chose to present to students; and they narrowed the range of course offerings available to students.[9]

Site-based management – opposite in many ways to the strategy of centralized testing – also shows problems associated with structural reforms. Daniel Levine and Eugene Eubanks, among others, have indicated how school-based models often result in changes in formal decision-making structures but rarely result in a focus on developing instructional skills or on changing the culture of schools.[10] There are numerous other examples of new legislation and policies – career ladders, mentoring and induction policies, testing and competency requirements, and so on – being rushed into place with little forethought about possible negative consequences and side effects.

A related bane of reform is faddism. Schools, districts, and states are under tremendous pressure to reform. Innovation and reform are big business, politically and economically. The temptation is great to latch on to the quick fix, to go along with the trend, to react uncritically to endorsed innovations as they come and go. Local educators experience most school reforms as fads.

There are two underlying problems. One is that mistaken or superficial solutions are introduced; the other is that, even when the solution is on the right track, hasty implementation leads to failure. Structural solutions are relatively easy to initiate under the right political conditions, but they are no substitute for the hard work, skill, and commitment needed to blend different structural changes into a successful reform effort. In other words, changes in structure must go hand in hand with changes in culture and in the individual and collective capacity to work through new structures. Because education reform is so complex, we cannot know in advance exactly which new structures and behavioral patterns should go together or how they should mesh. But we do know that neglecting one or the other is a surefire recipe for failure.

5. Misunderstanding resistance. Things hardly ever go easily during change efforts. Since change necessarily involves people, and people can commit willed actions, it seems natural to attribute progress that is slower than we might wish to their "resistance." Before a recent workshop, one of us asked a group of principals to list the problems they faced in a specific change project. More than half said "resistance" – variously known as intransigence, entrenchment, fearfulness, reluctance to buy in, complacency, unwillingness to alter behaviors, and failure to recognize the need for change. These traits were attributed to teachers and other staff members, though not to the principals themselves.

But it is usually unproductive to label an attitude or action "resistance." It diverts attention from real problems of implementation, such as diffuse objectives, lack of technical skill, or insufficient resources for change. In effect, the label also individualizes issues of change and converts everything into a matter of "attitude." Because such labeling places the blame (and the responsibility for the solution) on others, it immobilizes people and leads to "if only" thinking.

Change does involve individual attitudes and behaviors, but they need to be framed as natural responses to transition, not misunderstood as "resistance." During transitions from a familiar to a new state of affairs, individuals must normally confront the loss of the old and commit themselves to the new, unlearn old beliefs and behaviors and learn new ones, and move from anxiousness and uncertainty to stabilization and coherence. Any significant change involves a period of intense personal and organizational learning and problem solving. People need supports for such work, not displays of impatience.

Failure to institutionalize an innovation underlies the disappearance of many reforms.

Blaming "resistance" for the slow pace of reform also keeps us from understanding that individuals and groups faced with something new need to assess the change for its genuine possibilities and for how it bears on their self-interest. From computers across the curriculum, to mainstreaming, to portfolio assessments, to a radical change in the time schedule, significant changes normally require extra effort during the transitional stage. Moreover, there's little certainty about the kinds of outcomes that may ensue for students and teachers (and less assurance that they will be any better than the status quo). These are legitimate issues that deserve careful attention.

Many reform initiatives are ill-conceived, and many others are fads. The most authentic response to such efforts is resistance. Nevertheless, when resistance is misunderstood, we are immediately set on a self-defeating path. Reframing the legitimate basis of most forms of resistance will allow us to get a more productive start and to isolate the real problems of improvement.

6. Attrition of pockets of success. There are many examples of successful reforms in individual schools – cases in which the strong efforts of teachers, principals, and district administrators have brought about significant changes in classroom and school practice.[11] We do not have much evidence about the durability of such successes, but we have reason to believe that they may not survive if the conditions under which they developed are changed.

Successful reforms have typically required enormous effort on the part of one or more individuals – effort that may not be sustainable over time. For example, staff collaboration takes much energy and time to develop, yet it can disappear overnight when a few key people leave. What happens outside the school – such as changes in district policies on the selection and transfer of teachers and principals – can easily undo gains that have been made.

Local innovators, even when they are successful in the short run, may burn themselves out or unwittingly seal themselves off from the surrounding environment. Thus schools can become hotbeds of innovation and reform in the absence of external support, but they cannot *stay* innovative without the continuing support of the district and other agencies. Innovative schools may enjoy external support from a critically important sponsor (e.g., the district superintendent) or from a given agency only to see that support disappear when the sponsor moves on or the agency changes policies. Of course, the failure to institutionalize an innovation and build it into the normal structures and practices of the organization underlies the disappearance of many reforms.[12]

We suspect that few things are more discouraging than working hard against long odds over a period of time to achieve a modicum of success – only to see it evaporate in short order as unrelated events take their toll. It is not enough to achieve isolated pockets of success. Reform fails unless we can demonstrate that pockets of success add up to new structures, procedures, and school cultures that press for continuous improvement. So far there is little such evidence.

7. Misuse of knowledge about the change process. The final problem is related to a particular version of faulty maps: "knowledge" of the change process is often cited as the authority for taking certain actions. Statements such as "Ownership is the key to reform," "Lots of inservice training is required," "The school is the unit of change," "Vision and leadership are critical," and so on are all half-truths. Taken literally, they can be misused.

Reform is systemic, and actions based on knowledge of the change process must be systemic, too. To succeed we need to link a number of key aspects of knowledge and maintain the connections before and during the process of change. In the following section we offer seven such themes, which we believe warrant being called propositions for success.

PROPOSITIONS FOR SUCCESS

The seven basic themes or lessons derived from current knowledge of successful change form a set and must be contemplated in relation to one another. When it comes to reform, partial theories are not very useful. We can say flatly that reform will not be achieved until these seven orientations have been incorporated into the thinking and reflected in the actions of those involved in change efforts.

1. Change is learning – loaded with uncertainty. Change is a process of coming to grips with new personal meaning, and so it is a learning process. Peter Marris states the problem this way:

> When those who have the power to manipulate changes act as if they have only to explain, and when their explanations are not at once accepted, shrug off opposition as ignorance or prejudice, they express a profound contempt for the meaning of lives other than their own. For the reformers have already assimilated these changes to their purposes, and worked out a reformulation which makes sense to them, perhaps through months or years of analysis and debate. If they deny others the chance to do the same, they treat them as puppets dangling by the threads of their own conceptions.[13]

Even well-developed innovations represent new meaning and new learning for those who encounter them initially and require time to assimilate them. So many studies have documented this early period of difficulty that we have given it a label – "the implementation dip."[14] Even in cases where reform eventually succeeds, things will often go wrong before they go right. Michael Huberman and Matthew Miles found that the absence of early difficulty in a reform effort was usually a sign that not much was being attempted; superficial or trivial change was being substituted for substantial change.[15]

More complex reforms, such as restructuring, represent even greater uncertainty: first, because more is being attempted; second, because the solution is not known in advance. In short, anxiety, difficulties, and uncertainty are *intrinsic to all successful change*.

Ownership of a reform cannot be achieved *in advance* of learning something new.

One can see why a climate that encourages risk-taking is so critical. People will not venture into uncertainty unless there is an appreciation that difficulties encountered are a natural part of the process. And if people do not venture into uncertainty, no significant change will occur.

Understanding successful change as learning also puts ownership in perspective. In our view, ownership of a reform cannot be achieved *in advance* of learning something new. A deep sense of ownership comes only through learning. In this sense, ownership is stronger in the middle of a successful change process than at the beginning and stronger still at the end. Ownership is both a process and a state.

The first proposition for success, then, is to understand that all change involves learning and that all learning involves coming to understand and to be good at something new. Thus conditions that support learning must be part and parcel of any change effort. Such conditions are also necessary for the valid rejection of particular changes, because many people reject complex innovations prematurely, that is, before they are in a sound position to make such a judgment.

2. Change is a journey, not a blueprint. If change involved implementing single, well-developed, proven innovations one at a time, perhaps we could make blueprints for change. But school districts and schools are in the business of implementing a bewildering array of innovations and policies simultaneously. Moreover, reforms that aim at restructuring are so multifaceted and complex that solutions for any particular setting cannot be known in advance. If one tries to account for the complexity of the situation with an equally complex implementation plan, the process will become unwieldy, cumbersome, and usually unsuccessful.

There can be no blueprints for change, because rational planning models for complex social change (such as education reform) do not work. Rather, what is needed is a guided journey. Karen Seashore Louis and Matthew Miles provide a clear analysis of this evolutionary planning process in their study of urban high schools involved in major change efforts:

> The evolutionary perspective rests on the assumption that the environment both inside and outside organizations is often chaotic. No specific plan can last for very long, because it will either become outmoded due to changing external pressures, or because disagreement over priorities arises within the organization. Yet there is no reason to assume that the best response is to plan passively, relying on incremental decisions. Instead, the organization can cycle back and forth between efforts to gain normative consensus about what it may become, to plan strategies for getting there, and to carry out decentralized incremental experimentation that harnesses the creativity of all members to the change effort. . . . Strategy is viewed as a flexible tool, rather than a semi-permanent expansion of the mission.[16]

The message is not the traditional "Plan, then do," but "Do, then plan . . . and do and plan some more." Even the development of a shared vision that is central to reform is better thought of as a journey in which people's sense of purpose is identified, considered, and continuously shaped and reshaped.

3. Problems are our friends. School

improvement is a problem-rich process. Change threatens existing interests and routines, heightens uncertainty, and increases complexity. The typical principal in the study of urban schools conducted by Louis and Miles mentioned three or four major problems (and several minor ones) with reform efforts. They ranged from poor coordination to staff polarization and from lack of needed skills to heart attacks suffered by key figures. Problems arise naturally from the demands of the change process itself, from the people involved, and from the structure and procedures of schools and districts. Some are easily solved; others are almost intractable.

It seems perverse to say that problems are our friends, but we cannot develop effective responses to complex situations unless we actively seek and confront real problems that are difficult to solve. Problems are our friends because only through immersing ourselves in problems can we come up with creative solutions. Problems are the route to deeper change and deeper satisfaction. In this sense, effective organizations "embrace problems" rather than avoid them.

Too often, change-related problems are ignored, denied, or treated as an occasion for blame and defense. Success in school reform efforts is much more likely when problems are treated as natural, expected phenomena. Only by tracking problems can we understand what we need to do next to get what we want. Problems must be taken seriously, not attributed to "resistance" or to the ignorance and wrongheadedness of others.

What to do about problems? In their study of urban schools, Louis and Miles classified coping styles, ranging from relatively shallow ones (doing nothing at all, procrastinating, "doing it the usual way," easing off, or increasing pressure) to deeper ones (building personal capacity through training, enhancing system capacity, comprehensive restaffing, or system restructuring/redesign). They found that schools that were least successful at change *always* used shallow coping styles. Schools that were successful in changing could and did make structural changes in an effort to solve difficult problems. However, they were also willing to use Band-Aid solutions when a problem was judged to be minor. It's important to note that successful schools did *not* have fewer problems than other schools – they just coped with them better.

The enemies of good coping are passivity, denial, avoidance, conventionality, and fear of being "too radical." Good coping is active, assertive, inventive. It goes to the root of the problem when that is needed.

> **Success in school reform efforts is much more likely when problems are treated as natural.**

We cannot cope better through being exhorted to do so. "Deep coping" – the key to solving difficult problems of reform – appears to be more likely when schools are working on a clear, shared vision of where they are heading and when they create an active coping structure (e.g., a coordinating committee or a steering group) that steadily and actively tracks problems and monitors the results of coping efforts. Such a structure benefits from empowerment, brings more resources to bear on problems, and keeps the energy for change focused. In short, the assertive pursuit of problems in the service of continuous improvement is the kind of accountability that can make a difference.

4. Change is resource-hungry. Even a moderate-sized school may spend a million dollars a year on salaries, maintenance, and materials. And that's just for keeping schools as they are, not for changing them. Change demands additional resources for training, for substitutes, for new materials, for new space, and, above all, for time. Change is "resource-hungry" because of what it represents – developing solutions to complex problems, learning new skills, arriving at new insights, all carried out in a social setting already overloaded with demands. Such serious personal and collective development necessarily demands resources.

Every analysis of the problems of change efforts that we have seen in the last decade of research and practice has concluded that time is the salient issue. Most recently, the survey of urban high schools by Louis and Miles found that the average principal with a schoolwide reform project spent 70 days a year on change management. That's 32% of an administrator's year. The teachers most closely engaged with the change effort spent some 23 days a year, or 13% of their time on reform. Since we have to keep school while we change school, such overloads are to be expected.

But time is energy. And success is likely only when the extra energy requirements of change are met through the provision of released time or through a redesigned schedule that includes space for the extra work of change.

Time is also money. And Louis and Miles discovered that serious change in big-city high schools requires an annual investment of between $50,000 and $100,000. They also found some schools spending five times that much with little to show for it. The key seemed to be whether the money simply went for new jobs and expensive equipment or was spent for local capacity-building (acquiring external assistance, training trainers, leveraging other add-on funds, and so on). Nevertheless, some minimum level of funding is always needed.

Assistance itself can be a major resource for change. It may include training, consulting, coaching, coordination, and capacity-building. Many studies have suggested that good assistance to schools is strong, sustained over years, closely responsive to local needs, and focused on building local capacity. Louis and Miles found that at least 30 days a year of *external* assistance – with more than that provided internally – was essential for success.

We can also think of educational "content resources" – such big ideas as effective schools, teaching for understanding, empowerment, and school-based management – that guide and energize the work of change. In addition, there are psychosocial resources, such as support, commitment, influence, and power. They're supposedly intangible, but they are critical for success.

The work of change requires attention not just to resources, but to "resourcing." The actions required are those of scanning the school and its environment for resources and matching them to existing needs; acquiring resources (buying, negotiating, or just plain grabbing); reworking them for a better fit to the situation; creating time through schedule changes and other arrangements; and building local capacity through the development of such structures as steering groups, coordinating committees, and cadres of local trainers.

Good resourcing requires facing up to the need for funds and abjuring any false pride about self-sufficiency. Above all, it takes willingness to invent, to go outside the frame in garnering and reworking resources. (We are reminded of the principal who used money for the heating system to pay for desperately needed repainting and renovation, saying, "I knew that, if the boiler broke, they'd have to fix it anyway.") The stance is one of steady and tenacious searching for and judicious use of the extra resources that any change requires. Asking for assistance and seeking other resources are signs of strength, not weakness.

5. Change requires the power to manage it. Change initiatives do not run themselves. They require that substantial effort be devoted to such tasks as monitoring implementation, keeping everyone informed of what's happening, linking multiple change projects (typical in most schools), locating unsolved problems, and taking clear coping action. In Louis and Miles' study, such efforts occurred literally 10 times more frequently in successfully changing schools than in unchanging ones.

There appear to be several essential ingredients in the successful management of change. First, the management of change goes best when it is carried out by a *cross-role group* (say, teachers, department heads, administrators, and – often – students and parents). In such a group different worlds collide, more learning occurs, and change is realistically managed. There is much evidence that steering a change effort in this way results in substantially increased teacher commitment.

Second, such a cross-role group needs *legitimacy* – i.e., a clear license to steer. It needs an explicit contract, widely understood in the school, as to what kinds of decisions it can make and what money it can spend. Such legitimacy is partly conferred at the front end and partly earned through the hard work of decision making and action. Most such groups do encounter staff polarization; they may be seen by others as an unfairly privileged elite; or they may be opposed on ideological grounds. Such polarization – often a sign that empowerment of a steering group is working – can be dealt with through open access to meetings, rotation of membership, and scrupulous reporting.

The management of change goes best when it is carried out by a *cross-role group*.

Third, even empowerment has its problems, and cooperation is required to solve them. Everyone has to learn to take the initiative instead of complaining, to trust colleagues, to live with ambiguity, to face the fact that shared decisions mean conflict. Principals have to rise above the fear of losing control, and they have to hone new skills: initiating actions firmly without being seen as "controlling," supporting others without taking over for them. All these stances and skills are learnable, but they take time. Kenneth Benne remarked 40 years ago that the skills of cooperative work should be "part of the general education of our people."[17] They haven't been, so far. But the technology for teaching these skills exists. It is up to steering groups to learn to work well together, using whatever assistance is required.

Fourth, the power to manage change does not stop at the schoolhouse door. Successful change efforts are most likely when the local district office is closely engaged with the changing school in a collaborative, supportive way and places few bureaucratic restrictions in the path of reform.

The bottom line is that the development of second-order changes in the culture of schools and in the capacity of teachers, principals, and communities to make a difference *requires* the power to manage the change at the local school level. We do not advocate handing over all decisions to the school. Schools and their environments must have an interactive and negotiated relationship. But complex problems cannot be solved from a distance; the steady growth of the power to manage change must be part of the solution.

6. Change is systemic. Political pressures combine with the segmented, uncoordinated nature of educational organizations to produce a "project mentality."[18] A steady stream of episodic innovations – cooperative learning, effective schools research, classroom management, assessment schemes, career ladders, peer coaching, etc., etc. – come and go. Not only do they fail to leave much of a trace, but they also leave teachers and the public with a growing cynicism that innovation is marginal and politically motivated.

What does it mean to work systemically? There are two aspects: 1) reform must focus on the development and interrelationships of all the main *components* of the system simultaneously – curriculum, teaching and teacher development, community, student support systems, and so on; and 2) reform must focus not just on structure, policy, and regulations but on deeper issues of the *culture* of the system. Fulfilling both requirements is a tall order. But it is possible.

This duality of reform (the need to deal with system components and system culture) must be attended to at both the state and district/school levels. It involves both restructuring and "reculturing."[19] Marshall Smith and Jennifer O'Day have mapped out a comprehensive plan for systemic reform at the state level that illustrates the kind of thinking and strategies involved.[20] At the school/district level, we see in the Toronto region's Learning Consortium a rather clear example of systemic reform

Wishful thinking and legislation have poor records as tools for social betterment.

in action.[21] Schools, supported by their districts, avoid ad hoc innovations and focus on a variety of coordinated short-term and mid- to long-term strategies. The short-term activities include inservice professional development on selected and interrelated themes; mid- to long-term strategies include vision building, initial teacher preparation, selection and induction, promotion procedures and criteria, school-based planning in a system context, curriculum reorganization, and the development of assessments. There is an explicit emphasis on new cultural norms for collaborative work and on the pursuit of continuous improvement.

Systemic reform is complex. Practically speaking, traditional approaches to innovation and reform in education have not been successful in bringing about lasting improvement. Systemic reform looks to be both more efficient and more effective, even though this proposition is less proven empirically than our other six. However, both conceptually and practically, it does seem to be on the right track.[22]

7. All large-scale change is implemented locally. Change cannot be accomplished from afar. This cardinal rule crystallizes the previous six propositions. The ideas that change is learning, change is a journey, problems are our friends, change is resource-hungry, change requires the power to manage, and change is systemic all embody the fact that *local* implementation by everyday teachers, principals, parents, and students is the only way that change happens.

This observation has both an obvious and a less obvious meaning. The former reminds us all that any interest in system-wide reform must be accompanied by a preoccupation with how it plays itself out locally. The less obvious implication can be stated as a caution: we should not assume that only the local level counts and hand everything over to the individual school. A careful reading of the seven propositions together shows that extra-local agencies have critical – though decidedly not traditional – roles to play. Most fundamentally, their role is to help bring the seven propositions to life at the local level.

Modern societies are facing terrible problems, and education reform is seen as a major source of hope for solving them. But wishful thinking and legislation have deservedly poor track records as tools for social betterment. As educators increasingly acknowledge that the "change process is crucial," they ought to know what that means at the level at which change actually takes place. Whether we are on the receiving or initiating end of change (as all of us are at one time or another), we need to understand why education reform frequently fails, and we need to internalize and live out valid propositions for its success. Living out the seven propositions for successful change means not only making the change process more explicit within our own minds and actions, but also contributing to the knowledge of change on the part of those with whom we interact. Being knowledgeable about the change process may be both the best defense and the best offense we have in achieving substantial education reform.

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Mobilizing Community and Parental Support

Parental and Community Support and Involvement

Parental and community support and involvement are integral to the success of Goals 2000 and the National Education Goals. Reform efforts will need to encourage and support connecting families, schools, and communities to enable all children to reach high standards. Indeed, the new National Education Goal on parent involvement states that "by the year 2000, every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children." It will take all of us to accomplish this goal. Also, it is very important to involve large numbers of parents and parent representatives in crafting state, community, and school action plans—be they for Goals 2000 or for state or local purposes. Parent participation is very important in the very beginning and all the way through the education improvement process.

What are parental and community support and involvement?

The term "parental and community support and involvement" refers to all the ways in which concerned individuals and groups can participate in and have a positive effect on our education system. Education is not just a matter for students, teachers, and school staff members. In large and small ways, everyone in America is affected by, and can have an influence on, education. In implementing systemic reform, parent involvement needs to be considered in this larger, expanded context. School staff, family members, and members of the community must work together and support each other to help our next generation succeed. The Goals 2000 legislation recognizes the symbiotic roles of school, family, and community members.

The federal government is also encouraging ways to increase family-school partnerships to help students reach the National Education Goals. Indeed, the partnership message embodies the essence of the new parent involvement goal. In addition, the Goals 2000 requirements to involve parents in systemwide educational reforms and the reauthorization of the largest federal education program, the Elementary and Secondary Education Act (ESEA), are opening new avenues for family-school partnerships.

- **Parents' participation in school management**. As an overall strategy, Goals 2000 would support the continuation and expansion of opportunities for parents to take part in direct school governance. Under new restructuring efforts in many states and communities, school-based management initiatives bring together the principal, teachers, and parents as partners to manage the school and solve problems. In other school management efforts, parents receive school- and district-level "report cards."
- **Shared responsibility for student's achievement**. In addition to the new parent involvement goal stressing the formation of partnerships between schools and families, a new priority of the Clinton Administration under the proposed ESEA also illustrates the importance of cooperation between parents and schools to ensure their children's success. Schools that receive Title I funds would be required to enter into "compacts" with parents; these compacts would articulate the goals, expectations, and responsibilities of schools and parents as partners in student success. Compacts

This paper is offered to stimulate discussion and thinking in one of the key components to be included in Goals 2000: Educate America Act plans. We welcome revisions and suggestions for examples of effective state and local practices for future editions. Please send your comments to: Goals 2000; U.S. Department of Education; 400 Maryland Avenue, SW; Washington, DC 20202.

would form the basis for parent-teacher conferences, in which parents and teachers would discuss the progress of the child and ways to encourage better performance. Parents would be responsible for monitoring their children's attendance, completion of homework, television viewing, and positive uses of extracurricular time. Schools and districts would be required to inform parents about the National Education Goals, about their state's content and performance standards, and about the connection between federal programs and state standards.

- **Parent support and outreach**. Schools and districts are beginning to employ a range of special training programs and activities to support parents as their children's first teachers. These programs, which have their origins in early childhood education programs, are now adapted for parents of older children as well and would be supported under the proposed ESEA. Many of the programs help parents develop parenting skills and foster conditions in the home that promote study habits and attention to homework. The programs also discuss the National Education Goals, the state's curriculum content and performance standards, and state and local assessments. Many models have evolved, especially in an attempt to overcome language and cultural barriers between parents and the school. Others go beyond developing parents' skills in working with their children to encourage members of the community to serve as volunteers in the schools and to work with parents. Goals 2000 stresses the Parents as Teachers model and Home Instruction for Preschool Youngsters for training parents through parental information and resource centers in the 50 states.

- **Linking up with social services**. A wide range of social service activities and programs has begun to help parents help their children make the most of their time before and after school—in the home, neighborhood, and community. These services include home visits, job counseling and training, primary and emergency health care, substance abuse treatment, nutrition, housing, transportation, referral centers for family social services, and before- and after-school programs for children of working parents. Such service integration initiatives can be based in schools or housing projects, settlement houses, community development corporations, and child care centers. The Goals 2000 law supports the use of such collaborations to strengthen children's learning. Ultimately, the programs help parents promote their children's development and give parents the skills and confidence they need to be involved in their children's education. Family literacy programs such as Even Start illustrate a trend toward integration of services. Even Start, which is part of ESEA, provides an integrated program for parents and young children, of early childhood education, adult literacy and basic skills instruction, and parenting education.

Tips From the Research

While parental involvement can take many forms, here are some basic tips from the research on creating parent involvement programs that work (Rioux and Berla, 1994; Flaxman and Inger, 1991):

- Good family involvement programs do not always require new or additional money.
- All parents and families want the best for their children and can help them succeed.
- The benefits of parental involvement are not confined to early childhood or the elementary grades; parental involvement provides strong benefits to children through high school.
- Leaders among parents must be recognized as special, and schools should take care to nurture their continued involvement; schools should continuously nurture new parent leaders.
- People and organizations will stretch to meet the needs of the program in creative and innovative ways.
- Children from low-income and minority families have the most to gain when schools get parents involved in their children's education.

Why are parental and community support and involvement important in the Goals 2000 plan?

In addition to adopting a parent involvement goal, the Goals 2000: Educate America Act stresses the importance of parental involvement and community support by requiring each state's improvement plan to describe strategies for how state educational agencies will involve parents and other community representatives in planning, designing, and implementing the plan. The act recognizes that educational reform is a job that schools cannott do alone. Parents, businesses, community organizations, and public and private agencies providing services and support to families and children should be part of communitywide efforts. Indeed, the best way to assure parent and educator support and involvement in carrying out the Goals 2000 action plans is to involve them in crafting the recommended actions.

Tips From One State on Involving Parents, Educators, and Business in Crafting a Comprehensive Action Plan

South Carolina is known for the grassroots way in which it involved parents, educators, and business in developing and implementing a comprehensive reform package that resulted in concrete student achievement gains between 1983 and 1990. Here are some of the steps taken to involve literally tens of thousands of citizens in the education reform effort:

- **An opinion poll** offered advice on what the general public, parents, and teachers were concerned about and what improvements in education they would support.
- **Regional evening forums** gave specific ideas through small group discussions of what actions interested parents, teachers, and citizens would recommend to solve the state's education problems and reach proposed education goals. State and local leaders participated in each forum with attendance ranging from 700 to 2,500.
- **An education day in each region of the state** placed significant state leaders along with local leaders into every major school district in a region for an entire day to speak to groups (PTA, local Chamber of Commerce, Rotary Club, League of Women Voters, etc.) about the need for school reform, visit schools, and participate in TV and radio programs.
- **Toll free hotline** staffed by volunteers invited citizens to call in with ideas about what should be included in the emerging state school reform package.
- **A proactive speaker bureau**, with 25 trained speakers, prepared with brief handouts, potential question and answer sheets, and optional speeches for various audiences, gave some 500 speeches during a 5-month period leading up to passage of the legislation.
- **A paid and public service ad campaign** was run for several months leading up to introduction of the legislation and highlighting everyday citizens getting involved in their schools and communities to improve their schools and organizing their colleagues to get involved in the statewide effort to improve the schools.
- **Bumper stickers and newspaper ads** emerged from business and education groups supporting the reform efforts.
- **A broad-based panel of state leaders** crafted the reform plan on the latest studies suggesting promising practices and policies, the recommendations that came from the forums, speech bureau, and hotline, and expert testimony.
- **Community Coordinators**, an educator, and citizen leader helped involve citizens from the beginning of the reform effort into implementation.

In the action plan, parental and community support and involvement strategies can include strategies that

- Focus public and private community resources and public school resources on prevention and early intervention to address the needs of all students by identifying and removing unnecessary regulations and obstacles to coordination.
- Increase the access of all students to social services, health care, nutrition, related services, and child care services, and locate such services in schools, cooperating service agencies, community-based centers, or other convenient sites designed to provide "one-stop shopping" for parents and students.

Goals 2000 authorizes parental information and resource centers that provide training, information, and support to parents in each of the 50 states by 1998. In addition, some of the center funds must be used to establish, expand, or operate Parents as Teachers programs or Home Instruction for Preschool Youngsters programs.

What are examples of promising parental involvement and community support strategies and programs, which can support Goals 2000?

There are many kinds of innovative parent involvement and community support practices and programs in America today. Homework hotlines and interactive voicemail systems are linking parents, students, and teachers together in many states, such as Georgia, Tennessee, Missouri, Virginia, and California. Mentoring and tutoring programs are linking community members and students. The Teaching-Learning Communities (T-LC) Mentor Program in Ann Arbor, Michigan has a special focus on connecting senior citizens with children at risk of academic failure. Businesses, such as the John Hancock Mutual Life Insurance Company in Boston, Massachusetts, are developing family-friendly policies, including providing on-site daycare. Some corporations are actually providing for public schooling on their site.

Home Instruction Program for Preschool Youngsters (HIPPY) is a home-based school readiness program for parents of children 4 and 5 years old at risk of failing in school. The program provides parents with a 2-year curriculum, lesson plans, and materials to help them teach school readiness skills to their children. The program began in Israel in 1969 and was introduced into the United States in 1984. Today, there are 43 HIPPY sites operating in 16 states. Arkansas is deeply committed to the HIPPY program where 22 sites serve about 2,400 families. This commitment was made possible by the 1991 Arkansas Better Chance Program Act which increased the availability of funds for early childhood education programs such as HIPPY. The core HIPPY Program consists of home visits every other week in which a paraprofessional works with a parent on sequenced activity units to perform with their children on a daily basis. In alternate weeks, home visits are supplemented by group meetings at the local elementary school. Parents meet together for discussions of lesson topics and parenting issues. HIPPY is designed to increase the parents' self-esteem and to improve their children's cognitive abilities (Fruchter, Galleta, and White, 1992).

New York City. The "Children's Aid Program," sponsored by the Boys and Girls Club of America, runs a services integration project in the Salome Urena Middle Academies in New York City's Washington Heights-Inwood neighborhood. This area of New York was targeted because it had the highest poverty and crime rates, the largest youth population, and a substantial percentage of limited English proficient families. This "full-service" school is seen as the center of community life, where people work together to solve their own problems. A key goal of the school is to offer "one-stop shopping" that can give children and families quick, convenient, and comprehensive access to aid. The Salome Urena school offers extended hours (7 am to 10 pm) and multiple services such as those provided by social workers, dentists, nurses, and others. Over a thousand parents volunteer in the school of 1,350 students to do such things as record keeping and receptionist duty at the family resource center. Parents contribute as much to the success of the program as the professionals. Indeed, some parents have been trained to give vision and hearing screenings at the clinic. Parents are also offered classes at the school in anything from aerobics to English as a second language to college prep classes.

Where can I get more information?

Alliance for Parental Involvement in Education
P.O. Box 59, East Chatham
New York, NY 12060-0059
(518) 392-6900

ASPIRA Association Inc.
1112 16th Street NW, Suite 340
Washington, DC 20036
(202) 835-3600

Center on Families, Communities, Schools & Children's Learning
Boston University School of Education
605 Commonwealth Avenue
Boston, MA 02215
(617) 353-3309

Council for Educational Development and Research
1201 16th Street NW
Washington, DC 20036
(202) 223-1593

Hispanic Policy Development Project (HPDP)
250 Park Avenue South, Suite 5000A
New York, NY 10003
(212) 523-9323

Home and School Institute (HSI)
1201 16th Street NW
Washington, DC 20036
(202) 466-3633

Institute for Responsive Education (IRE)
605 Commonwealth Avenue
Boston, MA 02215
(617) 353-3309

International Reading Association (IRA)
800 Barksdale Road
Newark, DE 19704-8139
(302) 731-1600

Mexican American Legal Defense and Educational Fund (MALDEF)
634 South Spring Street, 11th Floor
Los Angeles, CA 90014
(213) 629-2512

National Association for the Education of Young Children (NAEYC)
1834 Connecticut Avenue NW
Washington, DC 20009
(202) 232-8777

National Association of Partners in Education
209 Madison Street, Suite 401
Alexandria, VA 22314
(703) 836-4880

National Black Child Development Institute
1463 Rhode Island Avenue NW
Washington, DC 20005
(202) 387-1281

National Coalition for Parent Involvement in Education (NCPIE)
Box 39, 1201 16th Street NW
Washington, DC 20036

National Coalition of Title I/Chapter 1 Parents (National Parent Center)
Edmonds School Building, 9th and D Streets NE
Washington, DC 20002
(202) 547-9286

National Council of La Raza (NCLR)
810 First Street NE, Suite 300
Washington, DC 20002-4205
(202) 289-1380

National Information Center for Children and Youth with Handicaps (NICHCY)
P.O. Box 1492
Washington, DC 20013
1-800-999-5599

Parents as Teachers National Center (PAT)
University of Missouri-St. Louis
Marillac Hall, 8001 Natural Bridge Road
St. Louis, MO 63121-4499
(314) 553-5738

Parent-Teacher Associations, National PTA
Department D, 700 North Rush Street
Chicago, IL 60611-2571

Parent Training and Information Centers, and Technical Assistance to Parent Projects
95 Berkeley Street, Suite 104
Boston, MA 02116
(617) 482-2915

U.S. Department of Education
Goals 2000 Community Project
Information Resource Center (IRC)
400 Maryland Avenue, SW
Washington, DC 20202
1-800-USA-LEARN

Reading List

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Washington, DC 20202.

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Make Parents Your Partners

Research-based suggestions for strengthening the home-school partnership.

For years, Joyce Epstein and her colleagues at the Center on Families, Communities, Schools, and Children's Learning in Baltimore, Maryland, have been studying the effects of parent involvement on children's learning, development, and school success. Her findings—that knowledgeable, encouraging, involved parents have children with more positive attitudes about school and higher aspirations for the future—should come as no surprise to most teachers.

What's interesting, says Epstein, is that many parents *want* to become actively involved in helping their children succeed, but feel they don't get enough direction from schools and teachers for doing so. According to Epstein, this sentiment cuts across all cultural and socioeconomic groups. "Data from the most economically depressed communities reveal that low-income parents want their children to succeed, and that they need the school's help to know what to do with their children at each grade level," says Epstein.

To help teachers and schools develop better, more meaningful partnerships with parents, Epstein and her colleagues identified and studied five types of parent involvement, briefly described below. (See the chart on the next page for examples and expected outcomes of each.) They are currently exploring a sixth type of parent involvement, community.

The Teacher-Leader

Through the course of her research, Epstein met certain teachers who were especially effective at fostering parent partnerships. Epstein calls this type of individual the teacher-leader. Parents whose children have such a teacher report that they:

- **are given many ideas for helping at home;**
- **understand more about what their children are being taught than in previous years; and**
- **believe the teacher really has their interests at heart and wants them to help their children succeed.**

The Five Types of Parent Involvement

- **Parenting** The school helps parents create supportive learning environments at home.
- **Communicating** The school reaches parents through effective communications.
- **Volunteering** The school recruits and organizes parent help.
- **Learning at home** The school provides parents with ideas for helping children at home.
- **Representing other parents** The school recruits and trains parent leaders.

Developing a Dialogue

According to Epstein, communication is one of the most important elements of effective home-school partnerships. Whether you're alerting parents to upcoming school events or trying to provide an explanation of your curriculum, it's important that printed communication can be easily read and understood by all parents.

Here are three strategies Epstein says can result in better written communication.

- Keep messages clear and jargon-free.
- Make sure notices are written in the language parents speak.
- Try using a variety of communications media, such as radio, computerized phone messages, or local cable TV.

"Make Parents Your Partners" by Joyce Epstein in *INSTRUCTOR*, April 1993.
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Checklist for an Effective Parent-School Partnership

One way to start improving your school's parent-school partnerships is by assessing present practices, says Joyce Epstein. The following questions can help you evaluate how well your school is reaching out to parents.

◆ Which partnership practices are currently working well at each grade level?

◆ Which partnership practices should be improved or added in each grade?

◆ How do you want your school's family involvement practices to look three years from now? Which present practices should change and which should continue?

◆ Which families are you reaching and which are hard to reach? What can be better done to communicate with the latter?

◆ What costs are associated with the improvements you want?

◆ How will you evaluate the results of your efforts?

◆ What opportunities will you arrange for teachers, parents, and students to share information on successful practices in order to strengthen their own efforts?

The Center on Families, Communities, Schools, and Children's Learning provides a variety of research literature and practical guides on parent involvement for under $10. To obtain a listing of resources, write the Center, Dissemination Publications, Johns Hopkins University, 3505 N. Charles St., Baltimore, MD 21218, or call (410) 516-0370.

The Five Types of Parent Involvement

	Type 1 Parenting	Type 2 Communicating	Type 3 Volunteering	Type 4 Learning at Home	Type 5 Representing Other Parents
Goal	Help all families establish home environments to support learning	Design more effective forms of communication to reach parents	Recruit and organize parent help and support	Provide ideas to parents on how to help child at home	Recruit and train parent leaders
Practices	• School provides suggestions for home conditions that support learning at each grade level. • School provides workshops, videotapes, and/or computerized phone messages on parenting and child-rearing at each grade level.	• Teachers conduct conferences with every parent at least once a year, with follow-ups as needed. • Language translators are provided for minority families. • Weekly or monthly folders of student work are sent home and reviewed; parental comments returned to teacher.	• Set up parent center where volunteers can meet and where resources for parents are located. • Send out annual postcard survey to identify all available talents.	• Distribute calendar listing possible topics for discussion by parents and students.	• Become involved in independent advocacy groups, and participate in and/or lead PTA/PTO or other parent organizations.
Outcomes	For parents—increased self-confidence in parenting; increased knowledge of child development	For parents—understanding school programs, monitoring child's progress	For parents—understanding teacher's job; increased comfort in school interactions	For parents—interaction with child as student at home	For parents—input into policies that affect child's education
	For students—respect for parent; improved attendance	For students—better decisions about courses and programs	For students—practice in communicating with adults	For students—achievement in skills practiced	For students—rights protected
	For teachers—understanding of family cultures and values	For teachers—use of parent network for communications	For teachers—readiness to try programs that involve parents in new ways	For teachers—better, more efficient designs of homework assignments	For teachers—awareness of parent perspectives for policy development

This and additional information on parent involvement will appear in Epstein's forthcoming book, School and Family Partnerships: Preparing Educators and Improving Schools, *to be published by Westview Press, Boulder, CO.*

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Keys to Successful Teamwork, Partnerships, and Networks

Purpose

Without a constantly visited, clear purpose, teams, partnerships, and networks can collapse. A sense of mission unifies the group.

Membership

No group can function well without individual members who demonstrate voluntary commitment and capacity to work interdependently. Above all, they must want to do it.

Linkages

Frequent and timely communication between members is critical. If face-to-face meetings are too few or communications systems (voice-mail, e-mail, FEDEX) are inadequate, the synergy will not materialize. Ongoing, voluntary interaction between members sustains the team or partnership.

Leadership

Networks are deliberate acknowledgements that no one person can (or needs to) do it all. Teams succeed when they rely on more than one person to play a leadership role. Leadership development must be nurtured in successful enterprises. Leadership is a function, not a job title, and may be demonstrated by individuals who assume specific roles in the group, or assume them when the situation requires it.

Multiple levels

It is essential to manage the flow of information up, down of involvement and sideways. When teams, partnerships, or network members do not keep their sponsors closely informed, or avoid contact with their constituents, they may be unpleasantly surprised when they are denied approvals or expenditures by people who have been kept out of the loop. When teams do not keep their constituents informed, they run the risk of losing touch with the organization as a whole. The multiple connections to different people and levels within the participating organizations must be sustained.

Source: Lipnack, Jessica, and Stamps, Jeffrey, *The Teamnet Factor*. Oliver Wight Publisher, Essex Junction, Vermont: 1993.

Team Action Plan

	Persons Responsible	Resources Needed	Due Date
What we want to share.			
Who we want to involve.			
How we will go about doing it.			

Source: Douglas S. Fleming and Barbara A. Fleming, School Strategies and Options, P.O. Box 1705, 218 Northfield Road, Lunenburg, Massachusetts 01462. Reprinted with permission.

Planning: A Task Framework

Milestones △ △ △ △ △ △

Phases	Ready	Commit	Launch	Review	Refine	Refocus
Component						

Source: Lipnack, Jessica, and Stamps, Jeffrey, **The Teamnet Factor**. Oliver Wight Publications, Essex Junction, VT: 1993.

Action Minutes

Team Members Present:

Page _____ **of** _____

Date: ______________________________

Recorder: ______________________________

Date/time/place of next meeting: ______________
____

Agenda Item	Staff Member Initiating	Summary of Discussion/Task List	Action Decision	Staff to Follow Up	Target Date Completion

Possible Agenda Items for Next Meeting	Odds and Ends List

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Continue-Start-Stop

What is it?

The Continue-Start-Stop tool is a series of questions that problem solving teams can ask as they review their meeting, planning, problem solving, or other work procedures.

When is it best used?

Use the Continue-Start-Stop tool when you want to get clearer about factors that may be helping or hindering, and provides a means of collecting suggestions for making changes that will help you work more effectively.

How is it done?

1. Review the situation you have identified. What did you set out to accomplish?
2. What evidence do you have to show that your procedures worked or didn't work?
3. Based on this evidence, what do you recommend that you:

   Continue, doing (because our evidence shows that it is working well):

   Start, or consider doing (because other evidence suggests that it will produce better results):

   Stop, or cease doing (because our evidence shows that it is not working):

The **Continue-Start-Stop** technique is but one approach to strategic and reflective inquiry. Another set of questions that can be used in reflecting on a problem-solving process includes:

Here's what we *assumed* would work:

Here's what we *learned*:

Here are our *new meanings*:

Source: Douglas S. Fleming and Barbara A. Fleming, School Strategies and Options, P.O. Box 1705, 218 Northfield Road, Lunenburg, Massachusetts 01462. Reprinted with permission.

Continue-Start-Stop

____

Situation Description

Continue	Start	Stop

Force Field Analysis

What is it?

Force Field Analysis is a technique for identifying and illustrating the barriers that hinder change and the opposing actions or conditions that promote change.

When is it best used?

Use Force Field Analysis when you want to analyze the current situation and design improved methods for communicating about or implementing a planned change. Force Field Analysis may be used when introducing programs or policies that are new and may face resistance. *Helping forces* move a problem situation toward change. *Hindering forces* slow down or prevent change.

How is it done?

1. Start by agreeing on the definition of the current problem or situation under discussion.

2. Identify the processes that either drive or restrain resolution of the problem as identified. Record them in one of two columns, like a balance sheet. Brainstorming rules apply here.

3. Seek consensus on the items listed.

4. Use arrows of different length, color or thickness to illustrate how you perceive the impact or strength of each helping or hindering force. Some groups use the scale 5 = very strong, 4 = strong, 3 = medium, 2 = low, 1 = weak to rate the relative impact of the forces.

5. Using the knowledge you have produced, develop plans for more effectively communicating and implementing change. It is usually more effective and less threatening to diminish the restraining forces than it is to increase the driving forces.

Example:

A district planning committee applied force field analysis in examining their staff developed program. Their work is illustrated on the following page.

Source: *Problem-Solving User's Manual*, Xerox Corporation, Stamford, Connecticut, 1991. Reprinted with permission.

Force Field Analysis

What We Want to Do

____

Factors That Help Us Achieve Our Goal		**Factors that Hinder Achieving Our Goal**
	↔	
	↔	
	↔	
	↔	
	↔	
	↔	
	↔	
	↔	
	↔	

Cause and Effect Diagram

What is it?

A Cause and Effect Diagram illustrates the relationship between a result and its antecedent conditions, or variables, which contribute to the result. Also known as a "fishbone" or Ishikawa diagram, the diagram resembles a fish skeleton.

When is it best used?

The purpose of a Cause and Effect Diagram is to identify probable causes of the problem or issue summarized in the box or "fish head." The structure of this graphic organizer (a) sorts and displays possible causes of a problem; (b) facilitates analysis of a breakdown in a current process or situation; and (c) enables identification of major and minor causes of a problem.

How is it done?

1. Summarize the problem to be solved in the box at the "head" of the fish.

2. Identify four or five main factors that may be the source of the problem in the rectangles at the end of the fish spines. Frequently used headings include **people, machines, methods**, and **materials** in product-centered situations, and **policies, procedures, people**, and **programs** in process-centered situations.

3. Generate probable causes within each main factor by using the brainstorming technique. Use the fewest words possible. Write each cause on the horizontal "bones" that intersect the spines.

4. Continue to explore the chain of causes until you are satisfied you have uncovered the root causes, not just they symptoms, of the problem.

5. Circle the most likely causes of the problem on the diagram. These are the areas you should study further in generating possible solutions to the problem.

Example:

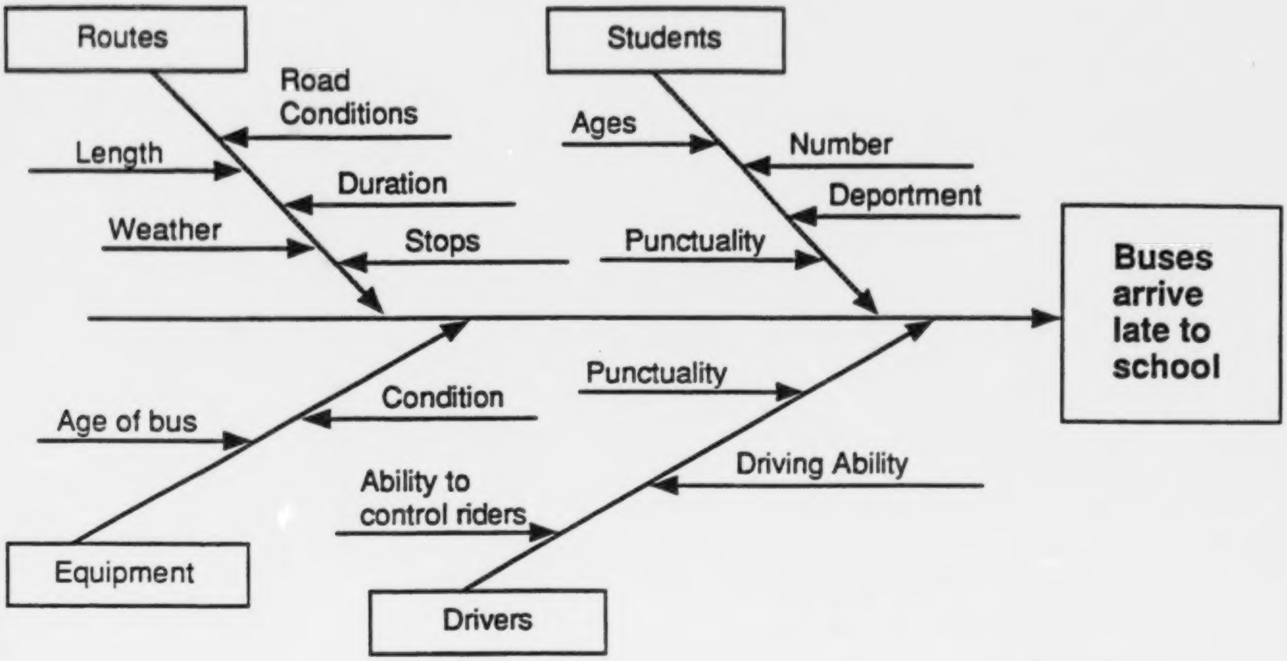
Several bus runs had been arriving late every day at a particular school. This resulted in some students coming into their first period class as much as twenty minutes late. The school administration called together a team of parents, students, bus drivers, the transportation manager, and the vice-principal to study the problem. They developed a Cause and Effect Diagram and "circled" those factors that seemed to have the strongest impact on the problem: the length of some bus routes and the number of students and stops on each bus route.

Further investigation of these circled areas showed that some bus routes required the pick-up of nearly twice the number of students than on other routes, and that those bus runs took an average of 60% longer than the shortest bus runs.

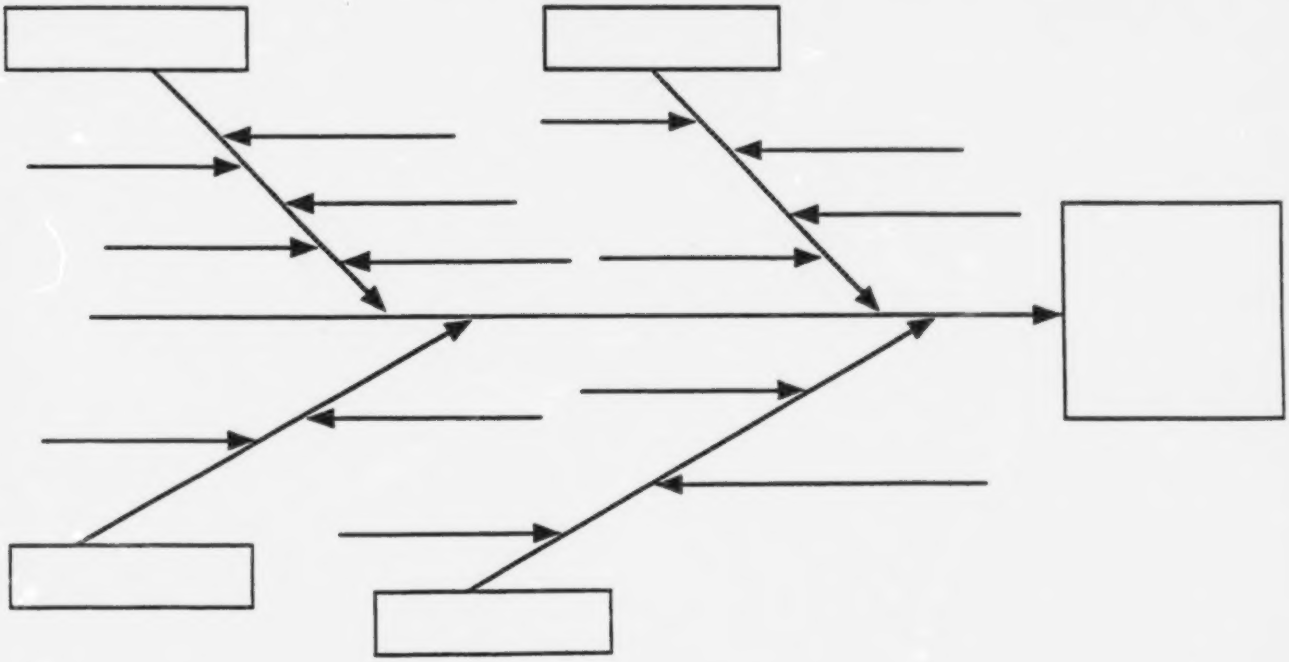
Using the data they collected, the team petitioned the school board for several new bus runs. Once the new runs were established, all of the bus runs arrived at school well before first period. The problem was solved.

Source: John Jay Bonstingl, *Schools of Quality: An Introduction to Total Quality Management in Education* (ASCD 1992). "Copyright John Jay Bonstingl 1992. Permission to reproduce or otherwise use this material for solely nonprofit educational purposes is hereby granted, provided this copyright notice is given. Contact: The Center for Schools of Quality, P.O. Box 810, Columbia, Maryland 21044 USA. Telephone (410) 997-7555. Fax (410) 997-2345.

Cause and Effect Diagram


Routes
Road Conditions
Length
Duration
Weather
Stops
Students
Ages
Number
Deportment
Punctuality
Buses arrive late to school
Condition
Age of bus
Equipment
Punctuality
Driving Ability
Ability to control riders
Drivers

Cause and Effect Diagram



Making Sure Your Plan Succeeds

1. Did we identify the right problem(s)?

___ Are the purposes of the proposed changes clear?
___ Does the present situation seem satisfactory?

2. Did we involve the right people in analyzing our situation?

___ Were all stakeholder groups involved in decision making?
___ Were all legitimate voices represented in planning meetings?

3. Do we have the leadership needed to acquire resources and champion our cause?

___ Are parts of our plan based on personal (hidden) agendas?
___ Is there lack of respect and trust in the planners?
___ Are people afraid to fail?

4. Did we design a plan with all parts of the system in mind?

___ Have the habits of the work group been ignored?
___ Have we communicated our strategies widely and frequently?
___ Are our costs too high?
___ Are rewards for implementing the plan seen as inadequate?
___ Will some people experience work overload?

5. Does this plan demonstrate better ways of working together?

___ How agreement is reached on goals and priorities?
___ How school resources are used?
___ How teachers work together?
___ How people are rewarded and recognized?
___ How conflicts and tensions are acknowledged?
___ How everyday patterns of behavior can be changed?
___ How local norms and traditions can be influenced?

6. Did we develop a comprehensive implementation strategy?

___ Did we anticipate obstacles and first "lines of resistance?"
___ Did we anticipate belated, second lines of resistance?
___ Did we provide for skill training and follow-up?
___ Did we check for conflicts with other building level priorities?
___ Did we obtain necessary materials?
___ Did we provide clerical, technological, or financial assistance?
___ Did we secure access to resource consultants?
___ Did we build in a monitoring/evaluation/feedback process?

Source: Douglas S. Fleming and Barbara A. Fleming, School Strategies and Options, P.O. Box 1705, 218 Northfield Road, Lunenburg, Massachusetts 01462. Reprinted with permission.

Paradigms for Parent and Family Involvement

Independent	Cooperative	Collaborative
Independent & Separate Actions:	**Coordinated but Contrived:**	**Working Together to Create Solutions: True Involvement**
Control Manipulation Patronization	Tokenism Placation Consultation	Empowerment Delegation Partnership
Little or No Information Flow	Low Information Flow (Tends to be one-sided)	Continuous Information Flow (Constant monitoring, evaluating, adapting)

Source: Douglas S. Fleming and Barbara A. Fleming, School Strategies and Options, P.O. Box 1705, 218 Northfield Road, Lunenburg, Massachusetts 01462. Reprinted with permission.

Technology

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Restructuring and Technology: Partners in Change

To the extent that restructuring and the use of technology are driven by challenging goals for students and supported by long-term commitments to change and investment in human resources, they will increase the productivity of our schools, Ms. David asserts.

BY JANE L. DAVID

SCHOOLS ARE out of step with the times. Inside and out, schools today look very much the way they did a hundred years ago: the buildings, the size and shape of classrooms, the divisions based on age, and the ways of "delivering" instruction have changed very little. Yet the world has changed remarkably. Families, jobs, social organizations, and entertainment look nothing like they did at the turn of the century. From inside a school, however, one would hardly know that visual images, rapid motion, technology, and change are pervasive in the world outside.

The nation's public school system faces the challenge of revamping and reorganizing itself to prepare students to function productively in today's society. Creating more demanding goals for all

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Illustration by Rob Colvin

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students and providing curriculum and instruction that stimulate thinking and problem solving will require a total restructuring of the education system from top to bottom. All parts of the system must change so that students, teachers, and administrators can take on and accomplish these more complex tasks. However, limited resources and natural resistance to change combine to make this challenge daunting.

Yet today's technology offers powerful tools for transforming what we do, what our organizations look like, and even how we think about the world. As technology pervades all aspects of our lives, it will inevitably do so in schools as well. But whether significant changes in teaching and learning will accompany the spread of technology in schools remains an open question.

Only some of the many possible scenarios for the future of technology in schools will directly affect teaching and learning. For example, computers will probably end up in every school's office, where they will be used for record-keeping and communicating with school staff, with parents, and with the central office. Computers may also become part of every teacher's armamentarium, to be used for their own purposes, such as record-keeping, communicating with parents, and planning lessons – and probably to be bought with their own money. One can also imagine schools equipped with computers – as well as with an array of audio, video, and telecommunications technologies – that are available to all teachers and students in a variety of settings for a multitude of instructional purposes. Conversely, one can all too easily imagine schools with rooms filled with broken, outdated, and otherwise idle equipment.

Technology has the potential to transform the relationships between teachers and students and even to change what schools look like. However, the history of education reform provides scant evidence that such a transformation will occur simply because the technology exists. Schools have demonstrated a staunch resistance to change over the decades. Moreover, the reforms that are adopted tend to be those that readily fit existing organizational structures and practices.[1]

There are two reasons to expect current and future technologies to have a different fate. First, the power, versatility, portability, and ease of use of today's technologies are altogether different from those of the past. For example, compare the video technology of today with instructional television of the past. A large-screen monitor in the classroom, connected directly to a multichannel cable system – together with a VCR, videodisc player, and a library of prerecorded programs – offers immediate access to a wealth of visual material and total control over scheduling and sequencing. Add a camcorder, and low-cost video production becomes possible. These technologies bear little resemblance to instructional television of the past, with its narrow range of instructional software and limited versatility.

■AS TECHNOLOGY PERVADES ALL ASPECTS OF OUR LIVES, IT WILL INEVITABLY DO SO IN SCHOOLS AS WELL. BUT WHETHER SIGNIFICANT CHANGES IN TEACHING AND LEARNING WILL ACCOMPANY THE SPREAD OF TECHNOLOGY IN SCHOOLS REMAINS AN OPEN QUESTION.

Although these features of new technologies may encourage uses consistent with existing practice, they will not by themselves lead to major changes in teaching and learning. The second reason that the new generation of technologies may actually transform schooling is the simultaneous presence of restructuring activities. This reason is even more compelling than the features of the new technologies because restructuring works to change the education system itself.

The current movement toward restructuring the education system differs from previous education reforms in goals, scope, and support. The very language of restructuring presents a dramatically different view of the failure of the system and of what reform entails. The goal of restructuring is to fundamentally transform teaching and learning in order to prepare students for the 21st century. And achieving that goal requires all parts of the system to change.

Moreover, discussion of restructuring extends well beyond the usual "insiders" involved in debates over education reform. The governors of all 50 states have made commitments to restructure their school systems. Through the Business Roundtable, executives from 200 of the largest U.S. corporations have made 10-year commitments to assist restructuring efforts in all 50 states. And across the country, superintendents, school board members, administrators, teachers, and parents acknowledge the need to restructure and have taken some first steps.

If these commitments can be sustained, technology will come to play a powerful role in transforming teaching and learning. Together, restructuring and the new technologies are a far more powerful force for change than either would be alone. In what follows, I describe what restructuring the education system means, what it takes to do it, and the role that technology can play. I then look briefly at current efforts to restructure and use technology and speculate about the next steps.

AN OVERVIEW OF RESTRUCTURING

Restructuring differs profoundly from previous approaches to education reform in two ways.[2] First, it is driven by challenging goals for student learning. Restructuring seeks to transform the current education system into one capable of providing students with the kinds of skills they need in today's world and the world of tomorrow. This means not simply improving what schools already do, but changing school practice fundamentally.

Second, restructuring takes on the entire system. In the past, reforms have tried to change what happens in classrooms without acknowledging that much classroom practice is determined by rules and regulations generated and enforced

AUTHORITY CARRIES WITH IT RESPONSIBILITY FOR OUTCOMES.

by the school administration, the district office, the teacher union, the school board, the state government, and the federal government. Education is an interconnected system, much like a jigsaw puzzle, and it is impossible to change one piece without changing the rest of the pieces.

Restructuring builds on what has been learned from previous reforms and from research on how people learn and how organizations change. For example, restructuring considers the importance of schools as organizational entities, each with its unique circumstances and culture; the failure of externally imposed programs as solutions to education problems and, conversely, the success of solutions devised by those responsible for carrying them out; and the importance of active involvement in the process of learning.

Previous reform efforts have sought to mandate what *procedures* educators should follow; restructuring shifts the focus to the *results* that their actions produce. Restructuring demands a new set of operating principles for the entire system – a shift from a rule-bound, compliance-driven system to a more flexible, decentralized system that can adapt and respond to continual change.

The scope of restructuring goes well beyond that of any previous reforms by identifying the many levels and pieces of the system that must change in order to transform the learning process. Teaching and learning must embody more challenging goals. Students must be able to understand what they read, not just recite rules and definitions; they must be able to locate, retrieve, and interpret information, not merely memorize a set of facts; they must be able to identify and solve problems, not simply fill out worksheets; and they must be able to work collaboratively, as well as alone.

Thus curriculum and instruction must change from an emphasis on isolated facts, skills, and coverage to a focus on integrated content, on the application of skills, and on the development of conceptual understanding. Teaching must change from dispensing information and rewarding right answers to creating activities that engage students' minds and present complex problems with multiple solutions.

"Reading is important, Kevin. You need it to understand computer manuals."

As part of restructuring, the authority to make educationally important decisions within broad goals must shift to the school site, and this change in turn requires school faculties to play new roles. For teachers and site administrators to take on these new roles and responsibilities, district and state administrators must change their roles correspondingly: from rule making and monitoring to providing resources and helping school faculties create stimulating learning environments. Change of this magnitude will also require new roles for parents, community members, the business community, and local and state policy makers.

Authority carries with it responsibility for outcomes. This means that current arrangements for accountability must shift in structure and focus. No longer can we place authority at the top and hold people at the bottom accountable; instead, accountability must be located at the same level as authority. The current focus on procedures and narrow outcomes must change to a focus on results that reflect valued learning goals. This shift requires the development of new kinds of assessment instruments that measure the kinds of thinking and problem-solving skills that are the desired outcomes for students.

At the same time, the systems that surround elementary and secondary education must change. For example, the criteria for admission to institutions of higher education constrain the extent to which high schools can change, and the ways in which colleges and universities prepare teachers and administrators exert a tremendous influence on the ability of the elementary and secondary system to change. Similarly, schools are also profoundly affected by accreditation, certification, and licensing standards and by the tests and textbooks adopted.

WHAT IT TAKES TO RESTRUCTURE

Describing *what* must change is different from – and easier than – describing *how* to make it change. Above all, restructuring asks individuals at all levels of the education system to change the way they think about and do their jobs.

Imagine a typical school, divided into a number of roughly identical classrooms. Inside each classroom, the number of students, the way they were assigned to the class, the content to be "covered," the textbook, the length of the class period, how often the class meets, the way success is judged (including testing), the furniture, the size and shape of the room, and so on – all these important conditions of instruction were not chosen by the classroom teacher. They were passed down through tradition and the many layers of the school system. The teacher is probably lecturing to the class, directing paper-and-pencil activities, or perhaps trying to lead a discussion with 30 students. These are the ways the teacher was taught, through 16 or more years of schooling, and these are the ways the teacher was trained to teach.

Today, we are asking these teachers to stop teaching students isolated facts, to stop emphasizing rote learning, and to stop just covering material and preparing for multiple-choice tests. Instead, we are asking them to start teaching students how to apply skills, how to understand concepts and solve problems, how to work collaboratively, and how to take responsibility for learning. In other words, we want teachers to give students the skills they will need to function in the work force and in society. And we expect principals to motivate and lead this transition and district and state administrators to lead, support, and assist schools as they redefine their goals, their roles, and their organizational structures.

These changes are challenging and difficult tasks to accomplish, especially given the constraints of time, money, and expertise. Such changes do not happen by fiat; they do not happen by rhetoric. But such changes are demonstrably possible. Successful attempts to restructure in the corporate world[3] and feedback from early stages of restructuring efforts in education suggest that certain ingredients are critical to the process of transforming teaching and learning. The following conclusions draw heavily on two studies of restructuring efforts that I led for the National Governors' Association.[4] The first included case studies of four districts beginning to restructure, and the second involved case studies of five state restructuring initiatives.

■THE CHANGES WE ARE REQUESTING ARE CHALLENGING AND DIFFICULT. THEY DO NOT HAPPEN BY FIAT OR RHETORIC. BUT SUCH CHANGES ARE DEMONSTRABLY POSSIBLE, IF CERTAIN INGREDIENTS ARE AT HAND.

An invitation. First, because it is clearly harder to do something new and different than to continue doing the same thing, people need an occasion to change – a reason for taking on something more difficult. So the beginning steps of restructuring require leadership that invites change: states invite districts to change; districts invite schools to change; principals invite teachers to change. The invitation is not an engraved announcement but a signal that the goals have changed. The signal is reinforced by discussions of how and why the current system is failing, the beliefs and values that will characterize the new system, some vision of what districts and schools can become, and permission to take risks and fail.[5]

The occasion may be a crisis created by or taken advantage of by a leader. Or it may be a grants competition. Or it might be a more radical shift in state law that invites the creation of new schools.[6] The invitation may also come from outside the school system – from a foundation or corporation. The important features of the invitation are that it signals the end of business as usual and a sincere commitment to support serious change efforts.

Authority and flexibility. Closely related to an invitation to change is the decentralization of authority to school faculties, accompanied by the granting of the flexibility (freedom from regulation) needed to create truly different structures. School faculties cannot restructure learning environments without the ability to make educationally relevant decisions according to their particular circumstances. In fact, lacking such authority and flexibility, teachers cannot take seriously an invitation to change.

This is a tricky step because formal authority is a fuzzy concept in most school districts. For example, state legislatures control school budgets in many states. Thus many school districts have not made educationally important decisions in years beyond some marginal textbook choices and curriculum elaboration. Some types of authority may not seem to be educationally important on the surface but are in fact profoundly influential. Consider, for example, decisions about the architectural design of new school buildings.

Moreover, if decentralization and deregulation continue to mean only token site-based management – site councils with small discretionary budgets and a chance to request waivers from certain rules – change will proceed at a snail's pace at best. At worst, teachers and administrators (and parents and students) will spend endless hours debating decisions that are not educationally important and meeting burdensome reporting requirements on needs assessments, improvement plans, and evaluations.[7]

Access to knowledge. Even with formal authority and flexibility, teachers and administrators need new knowledge and skills to do things differently. This does not mean attending a two-hour workshop on restructuring. It means that access to new knowledge and training must be built into the job. It means creating a culture in schools and districts that expects and values ongoing learning for students *and* adults – a culture that acknowledges that rapid change and the explosion of information require continuous learning on everyone's part.

Restructuring requires new roles and responsibilities for everyone in the system – a situation that, in turn, requires a massive investment in the development of human resources. Corporations do not successfully change the way they do business without intensive retraining and support for all employees. And neither can schools.

Time. In addition to authority and know-how, educators need time. It is not possible for teachers and administrators to change roles, to create new learning environments, and to build ongoing

(Continued on page 78)

Partners in Change

(Continued from page 40)

learning into their jobs without being given sufficient time to do so. Layering these major responsibilities on top of existing job responsibilities undercuts the seriousness of the intent to restructure. Unfortunately, somewhere along the way, time translates into money, which is always in short supply in education. Thus considerable creativity must go into reallocating resources in ways that free up time for educators to take on these new responsibilities.

It also takes time to change organizational structures. Districts that have tackled decentralization in the past have devoted as much as 10 years to the process. Restructuring requires a long-term commitment and a broad coalition of support, so that the commitment can survive changes in administration and elected officials.

THE ROLE OF TECHNOLOGY

Restructuring asks teachers and administrators to undertake tasks that are far more complex – with fewer resources. The preceding discussion offers a set of essential conditions for making such changes: an invitation, authority and flexibility, access to knowledge, and time. Technology alone cannot provide any of these conditions, but it can contribute in a variety of ways to each one of them.

Technology can invite change by signaling the need for change and by compelling organizational and instructional changes in classrooms. It can help reallocate and stretch resources and extend opportunities for learning for staff members and students. In addition, technology can provide support for the increased complexity introduced by individually tailored learning and decentralized authority. Below I describe some of the potential contributions of technology, based largely on my observations as part of two ongoing studies of efforts to introduce technology into the schools.[8]

Inviting change. Technology can act as a catalyst for change in several ways. To begin with, technology can provide an occasion for change – a necessary step in restructuring. A major infusion of hardware and software into a classroom or school offers an opportunity to rethink traditional practice. Of course, dropping a roomful of dedicated drill-and-practice systems into a school does not provide an occasion for significant change. But there are many alternative approaches that can serve as an invitation to change.

The presence of technology not only provides an opportunity for change; it also symbolizes that change. New technologies are one of the most visible and obvious manifestations of the way the world has changed and continues to change. This characteristic of today's technology embodies – and therefore implicitly communicates – many of the ideas that underlie restructuring. Thus the introduction of technology can lead to changes in teaching and learning that are consistent with the goals of restructuring. Consider the following examples:

- *Learning how to learn/no right answers.* Teachers quickly discover that the technology – hardware and software – changes so rapidly that they cannot keep pace. Hard decisions about complex tradeoffs continually have to be made on the basis of incomplete information. There is no such thing as learning all the facts or making the one right choice. In fact, learning about technology is a lifelong process, because the technology continues to change.
- *Teachers as colleagues and decision makers.* The introduction of technology fosters interactions among teachers, most of whom are equally in the dark about the subject. With thousands of pieces of software available and with hardware constantly changing, teachers are anxious to learn from one another and to share experiences and knowledge. A colleague's experience is by far the most trusted source of information. The cost of technology also requires that decisions about allocating scarce resources be made jointly. Should a school buy one laser printer or three dot-matrix printers? What are the tradeoffs between wider access and better quality?
- *Problem-solving opportunities.* Besides the software and instruction used specifically to teach problem solving, student use of computers provides opportunities to develop some "authentic" problem-solving skills because there are always glitches in learning new programs and procedures. Whether a bug in the software, a malfunctioning disk drive, a faulty chip, or an operator error, there are always problems to be solved, and students become quite adept at analyzing and solving them.

New roles and relationships in the classroom. New relationships in the classroom result from the presence of technology. A teacher facing students seated at computers learns quickly that he or she cannot conduct business as usual. Students turn to one another for answers to questions; teachers, who may feel threatened at first, end up turning to students; no one knows everything. Suddenly, expert knowledge is spread around, and the teacher is no longer the sole authority in the classroom. Collaboration among students and between students and teachers occurs naturally.

Reallocating resources. The potential for technology to reallocate and extend existing resources is only beginning to be tapped. It is unlikely that there will be sufficient funds or trained people to staff every school with "the best and the brightest" or to support ongoing training and retraining for all educators. Increasing the effectiveness of teaching and learning will, therefore, require serious rethinking of how resources – especially human resources – are allocated, an extension of the notion of creating new roles and responsibilities across the system.

Technology cannot solve these problems, but it can expand the range of possible solutions. For example, a first-grade teacher videotaped herself reading a story aloud. She then played the tape for the class, freeing herself to walk around and help students follow the story in the book. In effect, she cloned herself. The combination of introducing technology and reconceiving roles throughout an entire school opens a whole new realm of possibilities for creating learning environments that look nothing like the present arrangement of one teacher for each 25 to 35 students of the same age.

Technology can also bring into the classroom resources that facilitate active, problem-based learning and can access information otherwise unavailable or prohibitively expensive. Computer simulations, telecommunications, and compact disks can extend remarkably the sources of information available to students. Moreover, new technologies better reflect the world of visual images students have grown up with and thus have an intrinsic appeal. Teachers in technology-rich classrooms are often surprised by increased student motivation and decreased discipline problems.

Similarly, teachers and administrators, as well as parents and students, can avail themselves of a variety of workshops and courses by means of telecommunications. Teachers no longer need rely exclusively on what is available in their district. Through networks, teachers and students can exchange ideas and expertise with their peers around the world, thus expanding greatly their repertoire of experiences.

Technology can also simplify management and record-keeping for instructional and administrative purposes, freeing the time of teachers and administrators for more substantive work. Similarly, technology can enhance such services as communication with parents without increasing demands on teacher time. For example, homework telephone lines can be set up for parents, and even videotapes of classroom activities can be shown on local cable stations to keep parents informed.

Managing complexity. In contrast to initial expectations, however, the use of technology does not simplify teaching. In fact, introducing technology into schools as currently organized vastly increases the complexity of teachers' jobs because it makes possible more complex – though more effective – approaches to teaching.

Lecturing to the whole class is much simpler than organizing instruction for individual and small-group projects. Giving worksheets to the class is much simpler than adapting to individual learning styles. Active learning environments, by increasing student movement and communication, also pose organizational, planning, management, and evaluation challenges to even the strongest and most innovative teachers.

Consequently, under the best of current circumstances – that is, when teachers have access to the latest technology and sufficient training and support – the presence of technology complicates teachers' jobs enormously. They are learning not only how to use the technology but also how to teach differently, how to relate in new ways to their students, and how to assume new roles as learners, researchers, and equipment technicians.

Technology offers the potential to undertake more complex tasks in the classroom. Ultimately, when organizational changes – team teaching, flexible grouping and scheduling, time for learning – and the larger culture of the school and district support restructuring, the potential of technology to simultaneously increase and manage complexity will be exploited.

Technology can also contribute to solving the assessment problems intrinsic to restructuring. Restructuring focuses attention on results, yet there are no adequate measures of progress toward challenging goals for students. One solution is to create more authentic – and hence more complex – measures of performance. But if these richer and more meaningful results cannot be communicated as readily as grade equivalents, they will not be widely accepted. Similarly, there is growing interest in building portfolios for students that represent the quality of their work in richer and more meaningful ways than paper-and-pencil tests. Conducting such personalized assessment, however, is orders of magnitude more complex than administering standardized tests. Moreover, such indicators of performance are far too detailed and noncomparable for college admissions offices and policy makers to use efficiently.

Technology has the potential to synthesize and display complex quantitative and qualitative data derived from a variety of sources. Thus one application of technology to assessment might involve developing a single pictorial profile of each student – perhaps a bar graph display of eight dimensions deemed important – that could be captured instantly and printed with shadows representing the same measures at different times (or representing margins of error). School profiles might be presented in a similar fashion. My hunch is that grade equivalents will ultimately be replaced, not by another single number but by visual images that capture complexity. The same technology will support richer, deeper, and more individually tailored learning experiences, for example, by presenting students with a menu of resources based on their assessment pictures.

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RESTRUCTURING AND TECHNOLOGY IN PRACTICE

Both restructuring and technology have enormous potential to transform our education system and vastly increase what students know and can do. Signs of restructuring are already evident in a number of states and districts, as well as in individual schools. Progress is also evident in other areas of the education system, including teacher certification, curriculum development, and assessment.

Where restructuring is taken seriously, schools and districts are beginning to look different. For example, schools are organized into teams of students and teachers who spend several years together. Courses are cross-disciplinary and designed around themes and projects; students work both individually and collaboratively; teachers emphasize application of skills, conceptual understanding, and problem solving. Districts are beginning to decentralize authority; they are encouraging school faculties to create new approaches and are redefining roles in the central office.

These ideas are not new or radical by themselves. What is significantly different is the way in which teachers and administrators approach these changes. In sites where educators are truly tackling restructuring, their language does not reflect what I call the "project mentality," the almost universal state of mind created by the last three decades of education reform. Projects are characterized by preallocated budgets, mandated requirements, fixed time lines, and limited scope. Teachers have seen hundreds of such projects; as a result, they have been acculturated to expect change to come in that form and to carry a set of specific requirements for them.

Instead of exhibiting the project mentality, teachers in districts in which restructuring is under way talk in terms of having begun a careerlong way of doing their jobs differently. They speak of the need to continue to learn and experiment throughout their careers. Teachers and administrators no longer see their jobs as something they will continue to do in the same way for the next 30 years.

Restructuring efforts bring about visible changes in teaching and learning to the extent that the requisite ingredients are present: an invitation, authority and flexibility, access to knowledge, and time. Similarly, the introduction of technology actually influences teaching and learning to the extent that these same ingredients for change are present. Moreover, such changes in teaching and learning echo those described above in restructuring schools: collaboration, cross-disciplinary and project-based courses, emphasis on applying skills and problem solving.

Thus, for example, Apple Computer issued an invitation to rethink teaching and learning in its Apple Classrooms of Tomorrow (ACOT) sites. Each site consists of a few classrooms in a school in which each student has a computer both at school and at home.

In addition to providing "high-intensity access" to technology and an invitation to experiment, staff members from Apple headquarters have created several other conditions for restructuring. ACOT teachers have extra planning time as well as support and training from Apple, both on site and at Apple headquarters. Apple's emphasis on research and development (a phrase almost never heard in school districts) has created a climate that encourages and supports experimentation and risk taking. Moreover, Apple provides teachers with opportunities for professional experiences that are rarely available to them: making presentations at research meetings and conferences, attending summer institutes at Apple headquarters, and communicating electronically with colleagues at the other sites.

As a result, changes are visible in the organization of ACOT classrooms and in the way in which teaching and learning occur in them. There is much more student interaction and movement in the classes, as students work together on projects, help one another with technical difficulties in individual work, and explore new hardware and software. Although there are major differences across sites (including grade levels, types of communities, and innovations in instruction), no ACOT classroom would be mistaken for a traditional classroom.

But the effects of ACOT are limited because the program involves only a few classrooms in a school and is not part of a larger school and district change effort. Although ACOT does have some influence outside its own classrooms, the influences in the opposite direction – from the outside culture that generally resists risk taking and change – are far stronger. This state of affairs places added stress on ACOT teachers who are struggling to learn new ways of doing their jobs. The ACOT experiment also raises some hard questions – beyond the scope of this article – about the long-term effects of changing the behaviors of a small number of teachers and students in a system that does not yet support these new behaviors.

Another example of technology introduced in concert with other ingredients for change comes from one of several Model Technology Schools (MTS) sites in California. Under a large five-year grant, the state of California issued an invitation to integrate technology into curriculum and instruction. The particular MTS site I am referring to here also invests heavily in professional development, providing an array of opportunities for all the teachers in its three MTS schools to learn to use technology themselves before they use it for instruction.

At the end of three years, almost all teachers in the three MTS schools are using technology in one way or another. However, there is considerable variation, from almost no use to very sophisticated uses. Some teachers use technology simply to make their current strategies more efficient; for example, they might present materials on a big-screen video monitor instead of on a chalkboard. Other teachers have adopted markedly different kinds of instructional strategies, such as having students use a HyperCard database of habitats to prepare for a field trip. The latter teachers are, not surprisingly, the same ones who have tended to be innovative in the past.

ACOT and MTS also illustrate some of the necessary tradeoffs in making decisions about technology purchases and support. ACOT has the advantage of large infusions of technology and assistance with the corresponding disadvantage of a limited number of classrooms. In contrast, MTS has the advantage of being schoolwide, but each classroom has correspondingly less technology. The MTS schoolwide focus and the need to pool and share resources encourage group planning and decision making.

For example, in the MTS junior high school, teachers share a productivity center that includes computers and a laser printer, and they share a video production center with students. Each department makes decisions about software purchases. In addition, schoolwide efforts are far more likely to influence the culture of the school than are efforts in single classrooms. On the other hand, there are only a few computers per classroom. Consequently, the uses of technology have less dramatic effects on classroom organization and instruction in the MTS sites than in the ACOT setup of one computer per student.

Other configurations are possible that balance demands on resources with the benefits of schoolwide approaches. One is the establishment of certain schools as research and development sites or as professional development centers.

LOOKING AHEAD

The widespread uses of technology in both the ACOT and the MTS sites stand in striking contrast to most district technology purchases that have little or no discernible impact on teachers or students. Decisions to purchase dedicated systems and drill-and-practice software, to allocate one computer per classroom or one room of computers per school, and other similar approaches are not even intended to change teaching and learning. In contrast, ACOT and MTS offer teachers a voice in technology purchases and configurations and also provide a range of development opportunities – off-campus and in the classroom – that focus on using technology to support new kinds of instruction.

Like restructuring efforts that are limited to single schools, such efforts as ACOT and MTS will transform education only to the extent that they become part of larger district and state efforts to restructure all schools. By themselves, they are likely to share the fate of the many projects that have preceded them. ACOT's handful of classrooms and the handful of MTS schools are limited in their effect because they are not part of larger district and state restructuring efforts. Consequently, even with an invitation (from Apple Computer or from the state of California) and access to new knowledge, the larger systems do not build into the daily job of teaching the necessary authority and flexibility or sufficient time to learn.

Even with considerable resources dedicated to teaching about technology, if the other pieces necessary to support significant change are absent – knowledge about new ways to teach and the flexibility to reorganize instruction, schedules, and student grouping – only a few innovative teachers will change the way they teach as a result of the new technology. The vast majority of current and future teachers and administrators will not be able to do their jobs differently without intensive training of a kind that is not currently offered by districts or institutions of higher education.

This harks back to the central feature of restructuring: it is a systemwide process. Individual classrooms and schools cannot change substantially if the other pieces of the system do not change as well.

Consider, for example, the experience of one high school that redesigned much of its curriculum around multidisciplinary courses and shifted to portfolios for student records. Faculty members wrote to some 30 colleges and universities, asking if their students would be at a disadvantage coming from a school that offered nontraditional courses and used portfolios instead of Carnegie units and grades. The colleges answered that they would have to weigh test scores more heavily because portfolios were too time-consuming to peruse! Similarly, students in technology-rich environments engage in classroom activities that emphasize thinking and problem solving, yet they are ultimately judged by standardized tests that emphasize isolated facts and recall. Until there is broader agreement on curricular goals and adequate measures, these tensions will persist.

Restructuring is difficult. Learning to use technology effectively is difficult. Both require learning new ways to teach, which in turn require changing all parts of the education system. Real change is impossible to launch when skills and knowledge are absent, and it is impossible to sustain when the school culture doesn't support it. But difficult as change may be, it is essential to the future of our economy and of our society. The absence of change no longer means standing still; it means moving backward.

The concepts behind restructuring the education system and the technology that can contribute to that effort are both part of the Information Age. Together they reinforce a new viewpoint that magnifies their potential to change education. To the extent that restructuring and technology are twisted to fit the Industrial Age of the past, they will not affect educational practice. To the extent that restructuring and technology are driven by challenging goals for students and supported by long-term commitments to change and investment in human resources, they will increase the productivity of our schools – and ultimately of our society.

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1. Larry Cuban, *The Managerial Imperative and the Practice of Leadership in Schools* (Albany: State University of New York Press, 1988).

2. Many of the ideas discussed in this section are based on conversations with Michael Cohen and Susan Traiman.

3. Rosabeth Moss Kanter, *The Change Masters: Innovation and Entrepreneurship in the American Corporation* (New York: Simon & Schuster, 1983); and Thomas J. Peters and Robert H. Waterman, Jr., *In Search of Excellence: Lessons from America's Best-Run Companies* (New York: Harper & Row, 1982).

4. Jane L. David, *Restructuring in Progress: Lessons from Pioneering Districts* (Washington, D.C.: National Governors' Association, 1989); and Jane L. David et al., *State Actions to Restructure Schools: First Steps* (Washington, D.C.: National Governors' Association, 1990).

5. Phillip C. Schlechty, *Schools for the 21st Century* (San Francisco: Jossey-Bass, 1990).

6. Ted Kolderie, "The State Will Have to Withdraw the Exclusive," unpublished paper, Public Services Redesign Project, Center for Policy Studies, St. Paul.

7. Jane L. David, "Synthesis of Research on School-Based Management," *Educational Leadership*, May 1989, pp. 45-53.

8. The two ongoing studies are SRI International's evaluation of the Model Technology Schools project in the Cupertino and Fremont Union districts in California, supported by the California State Department of Education, and my own study of four Apple Classrooms of Tomorrow sites, supported by Apple Computer, Inc.

"Miss Cobb, there's something you should know. We were having a contest to see who could lean out the window the farthest, and Tommy Bishop won."

Reprinted with permission of the *Phi Delta Kappan*.

The Role of Computer Technology in Restructuring Schools

Most work in the U.S. is becoming computer-based, and the nature of schoolwork will make a parallel shift, Mr. Collins predicts. The outcome is likely to be a more constructivist view of education.

By Allan Collins

IN A society where most work is becoming computer-based, "schoolwork" cannot forever resist the change. Computer technology and electronic networks have slowly been infiltrating the schools.[1] Because of the widespread and growing use of such technology in both the home and the workplace, computer equipment is unlikely to end up in closets or even to sit idle most of the time. Hence, for both students and teachers, there is a kind of "authenticity" associated with using this equipment; for students, the technology represents the future.[2]

When a technological innovation – be it the book, the automobile, or television – becomes widely available, its ramifications spread throughout the society, and that includes education. For example, the invention of the printing press – and with it the advent of affordable books – had profound effects on education.[3] It

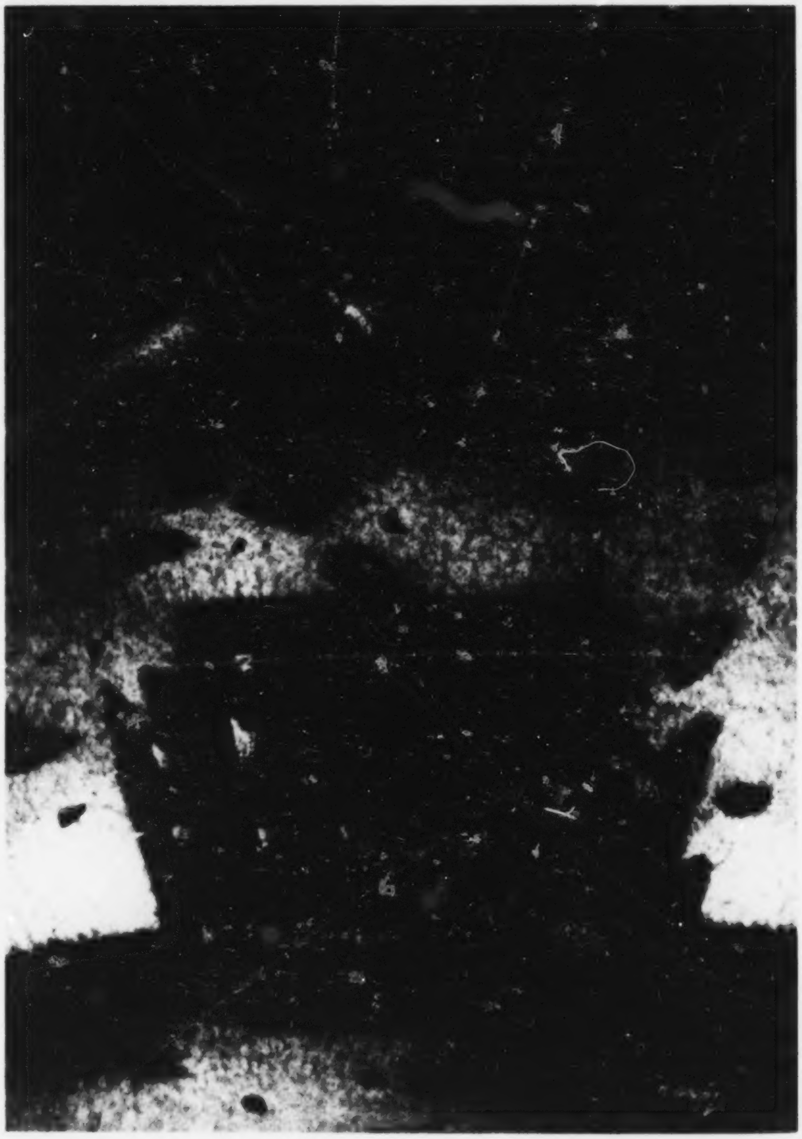

Illustration by Rob Colvin

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made the ideas of universal literacy and public schooling possible and led to a deemphasis on teaching the art of memory. The automobile – and the bus – led to the consolidation of rural schools, the dispersion of people to the suburbs, the split between urban and suburban education, and the practice of busing to achieve racial integration. The impact of television and video technology on education is already evident in the decline of the print culture and the rise of a visual culture, in shorter attention spans, and in a loss of innocence among children.[4] Similarly, the computer and the electronic network are likely to have significant effects on education, and it behooves us to consider what those effects might be as we think about the issue of restructuring schools.

TWO VIEWS of education have been at war for centuries: the didactic (or information-transmission) view and the constructivist view.[5] The didactic view prevails among the general public. It holds that teachers should be masters of particular domains of knowledge and that their job is to transmit their expertise about these domains to students through lectures and recitations. Students should memorize the facts and concepts of the domain and practice its skills until they have mastered them, and they should be able to demonstrate that mastery on appropriate tests.

The constructivist view, which undergirds the work of John Dewey, Lev Vygotsky, and Maria Montessori, holds that teachers should be facilitators who help students construct their own understandings and capabilities in carrying out challenging tasks. This view puts the emphasis on the activity of the student rather than on that of the teacher. Despite its predominance in the leading schools of education,[6] the constructivist view has made little headway in penetrating public education in America or, more generally, in the world at large. But the trends I describe below may change that.

Computer technology can be used in the classroom in three ways: 1) as tools such as word processors, spreadsheets, programming languages, and electronic network systems; 2) as integrated learning systems that present exercises for students to work on individually and that keep records of student progress for reporting to the teacher;[7] and 3) as simulations and games that engage students in computer-based activities designed to be motivating and educational. My argument in this article is that integrated learning systems and simulations (though important for educational purposes) will penetrate schools only to the degree that the need for tools provides a rationale for buying computers. So the trends discussed below assume the use of computers as tools, though they apply to other uses as well.

It is obviously difficult to anticipate all the effects of computer technologies, and it may well be that I will overlook some of the most important ones. But researchers have begun to observe the impact of these new technologies on the schools, so we can at least make some informed speculations. There are a minimum of eight major trends that can be identified from the literature and from observations in schools that have adopted computers.

1. *A shift from whole-class to small-group instruction.* When teachers use computers, one or two students are normally assigned to each computer. Teachers do not find it feasible to maintain all the students in lockstep, and so they move to an individualized model of teaching.[8] In their study of Apple Classroom of Tomorrow (ACOT) classrooms, Maryle Gearhart and her associates report a dramatic decrease in teacher-led activities (from constituting over 70% of class time when computers are not in use to constituting less than 10% when computers are in use) and a corresponding increase in independent or cooperative activities.[9] This shift means that teachers begin to talk to individual students and to develop an idea of how much students understand and what their confusions are. Usually teachers have an inflated idea of how much their students understand, so watching individual students struggle with problems may give teachers a more realistic picture of their students. The use of computers also means that students are more likely to go at their own pace – and often in their own direction – which can create problems of control for teachers.[10]

2. *A shift from lecture and recitation to coaching.* As part of the shift from whole-class to individualized instruction, there is a shift from didactic approaches to a constructivist approach. Janet Schofield and David Verban document this shift in terms of language: teachers switch from second-person constructions ("You should do this") to first-person constructions ("Let's try this"). Gearhart and her colleagues found that, in ACOT classrooms, activities *facilitated* – as opposed to *directed* – by teachers increased from about 20% of class time to 50%. The introduction of a third party, the computer, into the situation encourages the teacher to play the role of a coach, in much the same way that a piano encourages the teacher to play the role of a coach in a piano lesson. Much of the learning is meant to take place between the student and the computer, so the teacher becomes an observer and a guide who ensures that those interactions are beneficial to the student's learning.

3. *A shift from working with better students to working with weaker students.* In whole-class instruction, teachers carry on a dialogue with their better students.[11] This is because it is the better students who raise their hands to offer ideas. Teachers do not like to call on weaker students, because they do not want to "embarrass them in front of the class." In a classroom in which students are working on computers, the teacher is naturally drawn to students who need help, and those students are generally the weaker ones. Schofield and Verban document that, in one classroom with individual computers, two of the weaker students received four to five times as much attention from the teacher as the more advanced students. We see this same shift in the classrooms we have observed in New York City and Cambridge, Massachusetts. However, as Schofield points out, there may be a tendency for the teacher to overlook students who need help but do not ask for it, because the teacher is usually very busy in these classrooms.[12]

4. *A shift toward more engaged students.* In settings in which computers have been put at the disposal of students as part of some long-term activity or project, researchers have reported dramatic increases in students' engagement.[13] For example, Sharon Carver found that students who are so bored with their classes that they sleep through them are eagerly engaged in a project to construct a HyperCard museum exhibit about their

city. Similarly, Schofield and Verban report that students compare how far along they are in the geometry curriculum and even fight over who gets to use the computer during the time between classes. David Dwyer, Cathy Ringstaff, and Judy Sandholtz cite several examples of teachers in ACOT classrooms who were encouraged to assign more activities on computers because students were so highly engaged during such activities.[14] It may be that the reported increases in engagement are due to the novelty of the computer, but it is unlikely that this factor accounts for the entire increase. To the degree that the computer supports long-term effort rather than short exercises, there is suggestive evidence from these studies that students become invested in the activities they carry out on computers.

5. *A shift from assessment based on test performance to assessment based on products, progress, and effort.* Assessment in most classes is based on students' performance on tests that are given after different sections of the curriculum have been completed. The introduction of computer technology and the shift to individualized instruction move assessment away from the classroom test, which seems inappropriate to teachers under the circumstances. Schofield and Verban report that, in the geometry class they studied, the computer system would not let the students go on until they had solved each problem. Thus the teacher moved toward assessing students in terms of the effort and progress they made. When the teacher sets up a project-based curriculum, evaluation of students tends to be based on the products that emerge from their efforts. But for the present this creates problems for many teachers, because they do not know how to assess such products objectively. This problem has been solved for writing assessment in terms of wholistic and primary trait scoring methods, and clearly some such scheme is needed for project-based work.[15]

6. *A shift from a competitive to a cooperative social structure.* In the normal classroom, students work individually and compete against one another for grades, except when students drop out of the competition because of social pressures or repeated failure. A number of researchers have found a shift toward a more cooperative social structure in classrooms in which a network provides a common database for students.[16] Marlene Scardamalia and her colleagues describe how students comment on one another's notes, telling what they find interesting and what they cannot understand. Dwyer, Ringstaff, and Sandholtz note striking increases in cooperative behavior in ACOT classrooms, as reported from the teachers' journals they collected. Gearhart and her colleagues observed that, when computers were introduced into mathematics classrooms, instances of cooperative behavior increased from 10% of the time to 40% of the time, but they observed essentially no cooperative behavior in language arts classrooms, either with or without computers. Even Idit Harel, who studied fourth-graders working independently to produce a Logo program to teach fractions to third-graders, found students sharing ideas and expertise on how to accomplish certain things in Logo.[17] However, Schofield and Verban found an increase in competition in the geometry classroom they studied, and it may well be that integrated learning systems generally encourage students to compete to get through the material faster. A study conducted in Israel suggests that the degree of competition depends on how easy the program makes it for students to compare their progress.[18]

■COMPUTERS AND ELECTRONIC NETWORKS POTENTIALLY PROVIDE INSTANT ACCESS TO THE WORLD'S ACCUMULATED KNOWLEDGE, IN BOTH VERBAL AND VISUAL FORMS.

7. *A shift from all students learning the same things to different students learning different things.* An underlying assumption of the education system is that every student must acquire certain basic knowledge and skills. This assumption leads to failing students who haven't mastered parts of the curriculum and directing students' efforts toward their weaknesses rather than their strengths.[19] Electronic networks and shared databases foster a different view of knowledge, in which expertise is spread among different participants and brought together in a common space.[20] The National Geographic Kids' Network, which enables students all over the country to collect scientific data and to exchange ideas with one another and with working scientists, is an embodiment of this idea of distributed knowledge.[21]

Because of the trends toward individualized education, there is likely to be a secondary trend toward breaking the lockstep pattern of everyone learning the same thing in the same way at the same time. This secondary trend can be seen in the classrooms described by Dwyer, Ringstaff, and Sandholtz, in which students worked on different parts of complex projects, such as a model of their city; in the classroom described by Carver, in which students studied different aspects of their city to develop a museum exhibit; in the classrooms described by Scardamalia and her colleagues, in which students conducted research on different social studies and science topics; and in the school described by Denis Newman, in which students collected different data on the weather.

8. *A shift from the primacy of verbal thinking to the integration of visual and verbal thinking.* As Neil Postman has argued, the invention of the book took society from concrete, situated thinking to abstract, logical thinking.[22] The visual media – television, film, and computers – have begun to bring about a new kind of visual thinking, and a number of educators are exploring how to use visual media to enhance learning.[23] Computers and electronic networks potentially provide instant access to the world's accumulated knowledge, in both verbal and visual forms. This development may slowly undermine the primacy of the book, the lecture, and their accouterments, such as the multiple-choice test and the recitation class.

These eight trends are subversive to some of society's most deeply held beliefs and assumptions about education. In par-

COMPUTERS COULD MAKE THE TEACHER'S JOB EASIER.

ticular they make tenuous the view that the teacher's job is to impart expertise to students and that the role of assessment is to determine whether the students have acquired that expertise. So, inadvertently, technology seems to be coming down on the side of the constructivists, who have been trying – unsuccessfully to date – to change the prevailing societal view of education.

RESISTANCE TO TECHNOLOGY

David Cohen and Larry Cuban have argued persuasively that computer technology is likely to have little effect on the schools.[24] They maintain that, to the degree that technology is flexible, it will be bent to fit existing practice and that, to the degree it cannot be bent to fit existing practice, it will not be used. People interested in restructuring schools need to understand the various kinds of resistance to change, some of which are specific to technology and some of which are general, in order to identify the key leverage points for changing a well-entrenched system.

Any restructuring of schools can take place only over an extended period of time. Hundreds of years after its invention, the printing press was still affecting the development of public education. So I will take a long-term view of how restructuring might come about and in which areas a sustained effort is worthwhile.

If we look at the long term, issues that are currently important – the costs of computer technology, its unreliability, and teachers' unfamiliarity with its use – become nonissues. The costs continue to fall – a trend that can only accelerate as computers become more integral to everything we do. It is a fundamental principle of economics that, in relative terms, the cost of goods decreases and the cost of labor increases, so that, compared to teachers' salaries, computers will appear incredibly cheap in the next century.[25]

The problem of teachers' lack of experience with computers will also diminish as people come to rely on computers for writing, calculating, and communicating. This is already happening. It is easier to type into a word processor than to write by hand. (Indeed, it is hard to believe that we will continue to put children through the agony of learning handwriting, other than printing, when word processing is so much easier.) It is easier to do taxes on a computer than to do them by hand. And it is easier to send electronic mail than to post a letter. These uses will become commonplace among college students, secretaries, and bookkeepers, so there is every reason to believe that they will become commonplace among teachers. The problems of dealing with computers, such as getting them fixed, will become minor when the machines are used as a matter of course.

But the resolution of these kinds of problems does not necessarily mean that computers will be used in schools. Television is pervasive in society and will probably never be widely used in schools. So why should computers come to be widely used when television is not? My answer is that the computer's most common uses, which are related to work, are becoming necessary to accomplish school goals. Schools are in the business of teaching students how to read and write and calculate and think. As the computer becomes an essential tool for doing these things in society at large, its use by students is inevitable. We do not teach people how to drive cars by having them ride bicycles, nor will we teach people how to do computer-based work by having them use paper and pencil, arithmetic procedures, and library card catalogs.

There is a related argument that computers make the teacher's job more difficult, just as television and filmstrips or the new science curricula of the 1960s did. The latter required teachers to devote extra time to gathering materials and saddled them with the difficult management problem of coordinating a class of students working independently on experiments or discussing the meaning of what they had done.

It is true that computers make management more difficult when there are only a few computers in the classroom. The teacher has to figure out what to do with the students who are not working on computers or allow the few who are working on computers to miss a lesson being taught in the meantime. But again, these are only problems in the *transition* to a society in which most work involves computers. If students have ready access to a computer at all times – for example, if everyone has a portable computer that can be connected to a network from different places – then these management problems go away. Students will do much of their work on computers instead of with textbooks or worksheets. The management problem, then, is likely to be similar to the one teachers currently face when students work individually or in small groups. To the degree that the tasks students are doing with computers are more engaging than those they currently carry out with textbooks and worksheets, computers will make the teacher's job easier.

Another argument against the widespread use of computers is that teachers are not willing to relinquish their control of and authority over students. There are two aspects to this argument. One is that teachers want to be masters of everything that comes up in their classrooms, but they will lose authority because computers contain more information than they can possibly master. This situation is currently exacerbated by the fact that teachers do not know a lot about computers – but, as I argued above, that will change as our society becomes more computer literate. The other aspect of the issue of control is that teachers like to hold the attention of their students. If students are off working on their own, then the teacher has lost their attention as well as control over what they are doing. The solution to these problems is to change our view of the teacher's role to that of a facilitator of students' self-directed learning rather than a dispenser of information. Such a change in belief will not come easily and will only come about slowly with the introduction of a great many computers into schools.

Dwyer, Ringstaff, and Sandholtz report that many teachers in ACOT classrooms feel guilty about not teaching the students and nervous about all the talking and sharing of information among the students. These feelings alternate with very positive feelings that the students are highly engaged and actively learning. So ACOT teachers in the initial phases tend to vacillate between enthusiasm for having students do a lot of their work on computers and reversion to their old teaching methods in order to keep the class under control. Dwyer and his colleagues argue that, as the ACOT teachers move toward a more constructivist view of teaching, it is important for them to have the support of other teachers who have worked through or are working through the same transition.

Some people argue that teachers are not capable of using computers effectively. For example, in science labs they usually have students follow a fixed procedure (as opposed to conducting scientific experiments), so that students know at each step what is supposed to happen. Since this procedural approach stems from a desire to make sure all students succeed, it is likely that, when teachers use computers, they will also follow a rigid format. In fact, the computer-based integrated learning systems partially incorporate such an approach.

This argument is surely correct to the degree that teachers can fit computers into their normal way of doing things. But the tools and simulations provided by computers are not content free. They make it possible for students to take over part of their own learning. To the degree that computers support students' autonomous learning – and it is the goal of most educational software designers to provide such support – the particular pedagogical approach of teachers will be less decisive in determining how students learn.

A general view in organization theory is that American schools form a loosely coupled system, and, while they readily adopt changes at the periphery of the system (e.g., model schools, computer labs), it is very difficult to make pervasive changes at the core of the system.[26] While the nature of this system may not be the reason that constructivist teaching methods have failed to penetrate the schools, it will surely slow down any change that is introduced.

Counterposed to the view that schools are a loosely coupled system is the view that American schools have developed a system of institutions – including the age-graded school, multiple-choice testing, curriculum and materials, teacher education, and lecture and recitation methods – that are interlocking and self-sustaining. Disturb any one part of the system, and the other parts will pressure the system to return to its original state. All these institutions derive from and support a didactic model of education. According to Cuban, this system is characterized by "situationally constrained choice," which operates both within school and classroom structures and within the culture of teaching, including the beliefs of teachers. In his view, these work together to restrict what teachers can do in adopting different innovations.

TINA
CHAS ALMON

"Don't be so negative, mom. Think of it as desktop publishing."

According to this argument, if you try to introduce computers for students to do their work, the change will be sustained only to the degree that it fits the prevailing institutional structure. Since computers undermine the lecture and recitation methods of teaching and promote the student as self-directed learner, they do not fit this institutional structure and will be squeezed out by it. Integrated learning systems have dealt with this problem by preparing curricular materials that fit easily into the current system. The materials mimic the kinds of test items found in prevailing practice, and so they produce gains on standardized tests.

Integrated learning systems may have some initial success in penetrating schools because they are compatible with the current system. But I contend that it is society's uses of computers as tools that will ultimately sustain their penetration of schools. The interlocking system described can certainly slow down the process, but it cannot prevent it, because the nature of education must inevitably adapt to the nature of work in society. (I do not mean to imply that preparation for work is the only, or even the major, purpose of education; other purposes, such as the fostering of citizenship or culture, are also important. But the undeniable importance of education for work means that there should not be a complete mismatch between them.)

Even if technology is allowed into the schools under the guise of reinforcing existing practices, such as drill and practice and multiple-choice testing, once there, it will take on a life of its own. It is important to stress that many of the uses of computers as tools (e.g., word processing, mathematical computation, graphing of data) are quite compatible with current practice. Teachers will not object to students' typing their essays or even, in the long run, to their using computers to solve mathematical problems. Once teachers let computers in the door, then the kinds of effects described in the first section of this article will occur, and teaching practices will change. And just as a change in practices with respect to racial integration led eventually to a change in racial attitudes,[27] so a change in practices will slowly lead to a change in the educational beliefs of the society.

However, the arguments I have made so far suggest only that, over the long run, a change to a more constructivist approach to education is likely to occur. A more salient question is whether there is anything that can be done to speed up the change. In the next section I propose a structural change in school systems that would speed the adoption of any change that improves educational practice, whether involving computers or not. And in the final section I address the issue of how technology can most effectively be deployed to foster educational reform.

DESIGNING A SELF-IMPROVING SCHOOL SYSTEM

The present structure of schooling militates against change. Students are assigned to schools and are required to go to them. If the schools are bad, they will continue to exist: there is no way for them to fail. The only thing a school system can do to fix a bad school is to send in a new principal, and usually that person is prevented from making many changes because of the constraints of the situation.

Another problem is that it is difficult to start new schools successfully. It isn't that parents or teachers are prevented from starting schools, but that the incentive is for parents to keep their children in free public schools rather than pay to send them to private schools. So the schools that are started (other than those funded by foundations) tend to be schools for the children of wealthy parents. This is not where our major educational problems lie: they lie particularly among poor and minority populations.

To encourage innovation, we need a system that fosters the creation of new schools and allows failing schools to die, particularly in our large urban areas, where the problems of American schooling are concentrated. Such a system would stimulate existing schools to do everything possible to ensure their survival. We need incentives and constraints that function to make sure that the most difficult students and problems are dealt with and that natural selection operates on the basis of the quality of the schooling and not on some extraneous basis, such as the race of the school principal, the strength of the athletic program, or the endowment of the school with facilities or technologies. Any new system especially needs to avoid the current problem of creating schools that serve as dumping grounds for the educationally disadvantaged.

■ THE PRESENT STRUCTURE OF SCHOOLING MILITATES AGAINST CHANGE. STUDENTS ARE ASSIGNED TO SCHOOLS AND ARE REQUIRED TO GO TO THEM. IF THE SCHOOLS ARE BAD, THEY WILL CONTINUE TO EXIST. MOREOVER, IT IS DIFFICULT TO START NEW SCHOOLS SUCCESSFULLY.

In order to facilitate innovations in schools, I would like to propose the following design principles. They are an attempt to synthesize the essential elements of various proposals for redesigned school systems.[28]

1. *There should be a mechanism whereby a group of parents and teachers in a school district can start a school.* If parents and teachers in a school district want to start a school and if they have a minimum of, say, 25 to 50 students, they should receive funds from the district at least equal to the current cost per pupil in the district. They should receive space in an existing building that is proportional to the number of students.[29] Since there will be costs associated with starting a school (money for books, technology, and so on), additional start-up financing should come from a special fund, which should also provide resources for the expansion of schools to take on more pupils. In addition, members of the district staff should be assigned to encourage successful schools (either within or outside the district) to set up branches in the district.

2. *There should be a mechanism whereby schools are closed.* If an existing school's enrollment falls below a certain minimum (say 20 pupils), then the school should be closed and its students forced to choose another school within the system.

3. *A national agency should be established to provide parents and children with information about each school.* To make effective choices, parents and children need to have access to information regarding the educational policy and success of each school – similar to the kind of information available in national guides to colleges. This kind of information is best collected by a national agency, to avoid dishonesty on the part of local officials. The kinds of information the agency might provide include dropout statistics, test scores of students in the school, college entrance and college graduation rates of students from the school, random samples of opinions of former students and their parents, descriptions of the school's operation and facilities by neutral observers, and occupational profiles of former students. All parents and children who will be making a school-choice decision in the near future should receive information about all the schools they might consider. In the case of a new school, only a statement of intent would be possible, unless it is a branch of an existing school or a member of a coalition of schools.

4. *Students above a certain age should be provided alternatives to further school-*

MOST PEOPLE CHOOSE SCHOOLS BECAUSE OF MULTIPLE FACTORS.

ing. If students of a certain age (for example, 12 years old) wish to drop out of school, then they should be allowed certain options.[30] One option might be to leave school, if they can find full-time employment with a legitimate business enterprise. Another option might be full-time participation in a licensed program, such as a music camp or Boy Scouts. Most important, there should be a national alternative service program, such as VISTA, that would accept any student over the legal age. But students who take one of these options before age 18 should be encouraged each year to enroll in a school of their choice and continue their education. As Peter Drucker argues, we should be encouraging continuing education – education that goes on throughout one's life – rather than extended education, which keeps one out of the work force through a longer and longer adolescence.[31]

5. *Schools should be allowed to select the students they prefer, but there should be incentives to choose hard-to-place students*. If the proposed system is successful, schools will specialize. This means that their educational programs will probably be more successful for certain kinds of students than for others. If the system restricts schools' ability to select their students, it will restrict their ability to specialize and so undercut a major goal of the plan. On the other hand, all schools may want to accept certain kinds of students and reject others. To offset this tendency, greater financial resources should follow the hard-to-place students. In fact, the resources need to be enough greater to offset the systematic preferences of schools, which suggests some kind of market mechanism.

These five principles are designed to create a system that includes both individual schools and coalitions of schools with specialized goals. There might be technology-based schools, art schools, Montessori schools, essential schools, college-preparatory schools, special schools for disabled children, vocational schools, schools for girls, schools of design and engineering, schools for gifted students in particular fields, back-to-basics schools, schools for particular minorities, bilingual schools, and even comprehensive schools that avoid specialization.

This scheme runs counter to the philosophy of having every kind of student in every school in order to foster the overall integration of society. I would argue that specialized schools should be restricted from discrimination in the same way that colleges and businesses are restricted. In fact, any such specialized system would spawn a variety of regulations, such as the ones colleges are required to meet to be licensed by the state. But to the degree that schools want to cater to students with particular interests or abilities, they may develop techniques that are particularly effective. The economic argument for the benefits of specialization applies as much to schools as to business and labor. The moral argument against specialization loses force, given the inevitable disparity between urban and suburban school systems and the widespread tracking already in place in comprehensive schools.

One might argue that most parents and students will pick schools on the basis of proximity, or on the strength of the athletic program, or on the quality of the facilities, even if you provide them with information to make choices on the basis of educational quality. It is certainly true that most people will make their choices partly for such reasons. But most people make choices by considering multiple factors, so educational values are likely to play a role in their decisions. The effect of proximity could be diminished by having multiple schools in each building, so that choices could be made among equidistant schools. The effect of athletics could be diminished if we eliminated interschool athletic competition (as opposed to intraschool competition) in favor of Little Leagues or professional sports programs. The effects of facilities would be diminished if we equalized the distribution of resources on a per-pupil basis, as proposed in the first principle. To the degree that school effectiveness is weighed at all in people's choices, it will bring a gradual improvement in the quality of schools. The more it is weighed, the faster the improvement.

Such a plan does not assume that parents know what is best for their children. There will undoubtedly be schools that emphasize drill and practice rather than thinking or that teach creation science rather than evolution, and these will appeal to many parents. But such problems are pervasive in the current system; a high proportion of elementary school teachers think the phases of the moon are caused by the shadow of the earth and that the seasons are caused by changes in the distance of the earth from the sun. The proposal does not solve these problems, but it would make it easier for people like Marva Collins (an African-American woman in Chicago who started an academically oriented elementary school) to start schools. I would argue that most parents would want their children to go to specialized schools if they were available.

Another argument against the plan is that rich parents will subsidize their own children's schools by various means, which will undermine the mechanisms for establishing educational equity and for placing less desirable students. If parents want to subsidize the schools, that is all to the good: it will give schools more resources to improve education. Whatever parents contribute is not likely to make education funding more unbalanced than the current system of high per-pupil expenditures in the suburbs and low per-pupil expenditures in the inner cities and rural areas. However, if equality of educational opportunity is in society's interests, as I believe it is, then there is a rationale for offsetting parental subsidies with higher per-pupil expenditures for schools that do not receive such windfalls. In principle, a market mechanism of financial incentives for schools to take less desirable students would automatically act to offset such parental subsidies.

One of the arguments that might be made against such a proposal is that it will produce a system like the college system in America, and colleges are not noted for their willingness to innovate. In fact, the most tradition-bound colleges, such as Harvard, are the most prestigious, and therefore their practices serve as models for other colleges. This pat-

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tern inhibits the introduction of new practices and serves to maintain the didactic approach to education that pervades the traditional colleges.

If we analyze the problem of educational improvement in terms of organization theory,[32] we see that it derives in part from the fact that, when consumers choose colleges – as opposed to restaurants or medical treatments – they find it difficult to tell a good product from an inferior one. So in choosing colleges people rely mainly on prestige, and since prestigious colleges obtain the best students and the most famous professors, they make a better impression on paper than their educational practices warrant. This effect tends to undermine the drive for self-improvement of any new education plan.

However, I think it can be argued that, in fact, colleges have been much more innovative than the public schools in America and form the strongest part of our education system. Certainly in terms of the infusion of technology and flexibility in the curriculum, colleges have been much more innovative. For example, there is more pressure on students in colleges to do their work on computers, and it seems likely that within 10 years every college student in America will have his or her own personal computer. And when new disciplines emerge, such as psychology or computer science, they are much more readily incorporated into the college curriculum than into the public school curriculum. The continual birth and death of colleges encourages all colleges to seek their own market niches and to create programs that parents and students will find valuable. It is particularly among the less prestigious colleges, which serve the non-elites, that experimentation and improvement through natural selection occur. In public schooling it is with the non-elites that our major problems lie, so that, under the proposed plan, innovation is likely to occur where it is most needed.

If a diversity of schools arises and people are given the information necessary to make well-thought-out decisions, then the system will evolve toward better schools. The more effective schools will thrive and multiply; the less effective schools will die out. Existing schools and their personnel will do everything they can to enhance their chances for survival. There might evolve a preponderance of certain types of schools (e.g., essential schools), but that would happen only if they fulfilled the educational goals of a majority of parents and children. However, it is important to recognize that a plan such as the one proposed here will not solve many of the problems of our schools: it will only make it easier for change to occur in a very resistant system.

■IF YOU HAVE COMPUTERS THAT ARE EASY TO UNDERSTAND AND THAT ARE POWERFUL TOOLS FOR DOING SCHOOLWORK, PEOPLE WILL FIGURE OUT HOW TO USE THEM. DESPITE RESISTANCE, THE EFFORT TO MAKE THE TRANSITION TO COMPUTERS IS UNDER WAY.

THE USES OF TECHNOLOGY TO FOSTER EDUCATION REFORM

The arguments in this article have several implications for the course of action that school reformers and technologists should take to make schools compatible with the changing society. In the next century, an educated person will need to be able to learn and think in a computational environment. Most schools do not teach students these abilities now, and so a major change ought to be made in the way schools function.

The first implication is that schools should start using computers as tools as much as possible. Many people might object to this step, particularly in light of the ACOT efforts, which to date have had marginal success at best.[33] They would argue that it is better to put resources into developing good educational software, into teacher training, or into hiring computer coordinators, in order to make sure that the technology that goes into the schools is used effectively. The trouble with this argument is that it presupposes that good educational software or teacher training or computer coordinators will lead to a more effective use of the technology. In a few cases that is true, but on a broad scale it is not likely to prove so.

I would argue that, if you have computers that are easy to understand and that are powerful tools for doing schoolwork, then people will eventually figure out how to use them. Using computers effectively in schools is difficult because of the various types of resistance described above; thus spending resources to improve usage will usually not work. We should not expect efforts such as ACOT to succeed immediately. But society is making the transition to computers, and the massive educational effort to make the transition is reaching both students and teachers. Herbert Simon refers to this as "education by immersion."[34]

Let me also add that, in the future, the most powerful educational application of computers may not be to use them as tools. Rather, using their capacities for *simulation*, for assistance in *reflection* and self-evaluation, and for *visual displays* may prove to be even more productive. But computers as tools are becoming necessary to do work, and their usefulness to students and teachers will become readily apparent to everyone. The following uses of computers will come into play once computers have established themselves in schools.

Simulation. Computers allow students to carry out tasks they cannot normally carry out in school, from running a business or managing a city to troubleshooting a faulty circuit. The possibility of carrying out tasks that are difficult or impossible to do in school is one of the major educational uses of computers.[35]

Reflection. Another powerful application of computers is for students to compare their own performance to other people's performances on the same task.[36] For example, in teacher education there might be a hypermedia system showing expert and novice teachers teaching some subject matter to students, with critiques on various aspects of the lessons by experts with different points of view and explanations by the teachers of what they were trying to accomplish. Then student teachers could compare videos of

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Beyond Equal Access

Gender Equity in Learning with Computers

By June Mark, Center for Learning, Teaching, and Technology, EDC

As we approach the year 2000, computers are becoming commonplace tools in our workplaces, schools, and homes, changing the ways in which we work, learn, and communicate with one another. According to U.S. Department of Labor predictions, by the year 1995 at least two million people will be employed in occupations directly related to computers, and millions of others will use computers as a routine part of their jobs.[1] Computer-related occupations are expected to grow 5 percent per year in the 1990s.[2] Computers have, for both good and bad, transformed the nature and environment of work. Since women are a growing segment of the U.S. labor force, making up almost two-thirds of the new entrants into the work force between 1987 and 2000,[3] computers have and will continue to have a substantial impact on women's lives.

Lack of access holds implications for future educational opportunities as well as career options and choices.

Because developing familiarity and facility with computers is an important educational goal for *all* students, schools need to ensure equity in computer access, use, and outcomes. However, numerous studies have examined and documented inequities, especially with respect to girls and young women. Given that the presence of computers in our schools and workplaces is likely to increase, there is a need to understand why inequities in computer use exist and to develop effective strategies to ensure equal opportunities and equitable consequences for all students in interactions with computers. This article focuses on gender equity in learning with computers and includes a review of relevant research and practice.

One caution: while we know that social class and racial/ethnic inequities exist with regard to computer access and educational outcomes, studies that consider race/ethnicity, gender, and class simultaneously are few. For a true picture of gender issues with regard to computers—one that acknowledges the many differences among females, we need to know more about all of these issues.

Gender differences in school computer access, use, and interest

There are many factors—psychological, social, attitudinal, and environmental—that contribute to the existing conditions. These issues are of concern not simply because girls and young women have less access, but because lack of access holds implications for future educational opportunities as well as career options and choices.

Gender differences have been documented in both computer use and access; girls are more likely to use computers for word processing, while boys are more often programming computers. Boys have significantly more positive attitudes toward computers than girls, finding computers more "enjoyable," "special," "important," and "friendly" than girls do.[4]

A computer gender gap usually starts becoming noticeable at the middle school level and widens as girls get older.[5] Gender differences are more evident in advanced classes than in introductory courses.[6] Girls tend to have less confidence in their own use of computers, and both boys and girls perceive computers as predominantly in the domain of males. These attitudes contribute to lower enrollments in computer courses and in varying levels of interest.

Computer use in informal settings

In voluntary, out-of-school uses of computers,

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June 1992
Education Development Center, Inc. (EDC)
Funded by OERI, U.S. Department of Education

Beyond equal access. . . continued

even greater gender differences have been found. Boys are more likely than girls to have access to and use a computer in their home, in a friend's home, or in a computer camp.[7] Miura and Hess found that boys are roughly three times as likely to enroll in computer camps and summer classes, with variations increasing with grade level, cost of program, and difficulty level of course.[8] In another study of students who had not yet received computer instruction in school, over 60 percent of boys had a computer at home compared to 18 percent of girls, and 28 percent of girls versus 64 percent of boys reported knowing how to work with computers.[9]

Students are more likely to be engaged and motivated in using the computer if they see it as an important tool for accomplishing their own goals.

Effects of experience on attitudes

Several researchers have found a relationship between positive experience with computers and future interest in and facility with computers. Loyd and Gressard found that students' attitudes toward computers are significantly affected by computer experience, and that differential computer experience accounts for differences in attitudes more so than gender does.[10] In one study, researchers found that experience with computers reduces the attitude differences regarding boys' versus girls' abilities with computers, and, therefore, reduces the prevalence of sex stereotypes among boys and girls.[11] Questions regarding the types and effects of experience with computers, especially on continued interest in working with computers and on attitudes, deserve further investigation.

Computers associated with math and science

There have been widespread data collected about gender bias in student learning of mathematics and science,[12] and there is concern that these inequities will be mirrored in the use of computers in education. Because computers are so often linked with mathematics and science, long considered male domains, how computers are being used in teaching and learning may have serious consequences for the learning opportunities of girls. Especially in secondary schools, computers are more often clustered in math and science departments. And apart from the fact that girls at present are less inclined to be interested in math and science activities than boys are, the fact that teachers in these areas are predominantly male significantly reduces the opportunity for girls to have female role models who use computers.

Learning context

Computers are versatile tools, suitable for a range of activities in schools from music to mathematics, including design, problem solving, writing, and planning. Linn hypothesizes that both the function for which the computer is used and the organization of the learning setting affect the engagement of girls and boys with the technology.[13] Fewer gender differences are reported when computers are used for computer-assisted instruction, games, simulations, or word processing. Some researchers have found that boys are more interested in competitive games such as the software in video arcades while girls are more interested in the computer when they are working with word games, logic puzzles, art, music, "story" programs, and adventure games.[14] Because many students develop their impressions about computers in schools, it is important that the computer tasks and the software meet the learning needs of students and represent uses of technology that emphasize the strengths of computers to solve problems, aid in decision making, and achieve goals that are important and relevant to students. Computers are not inherently biased, yet in the contexts they are used they can often take on characteristics that reinforce gender bias.[15]

Given that learning experiences and context influence students' computer use, and perceptions about computers, what are some effective strategies that incorporate these ideas into actions for promoting equity in the use of computers?

Designing equitable learning contexts: software and related materials

As more and more computer software specifically designed for varied educational purposes becomes available, teachers and students will have a greater range of options, and software can be selected to more closely match individual student needs. Students are more likely to be engaged and motivated in using the computer if they see it as an important tool for accomplishing their own goals.

One method to illustrate computers' usefulness in problem solving and relevance to many activities and subjects, is for teachers to develop specific computer design or research projects for their students. These types of projects get students actively involved in learning, let them have fun, and have them using computers as an integral part of their work in a number of different ways (for example, design and drawing, model building, measurement and calculation, word processing).

Designing equitable classroom organization and interactions

One particular teaching strategy that appears effective in engaging females in the use of computers is structuring collaborative learning experiences. This is consistent with evidence that it is not only what software is used in classrooms, but how it is used, that impacts student engagement with computers. There is some indication that collaboration may be a preferred work context for girls.[16] Software games in which children were required to play cooperatively appealed more to girls,[17] as did teacher-structured collaborative activities.

Teachers can also involve students in discussion about the equity issues in using technology.

Continued p. 6, "Beyond equal access"

As an introduction, teachers can share research on computer equity with students, asking students what they think about the issues, discussing any questions they may have, and any issues that students feel don't make sense to them or that they don't understand. Teachers and/or students may be interested in doing their own research projects to analyze equity in computer use, access, and classroom interactions in their school. This can get students involved in understanding the issues and in educating others throughout the school.

Staff development

Changes in attitudes and practice do not happen overnight. They require time, good ideas and examples, resources, and support in order for teachers to effectively integrate computers into their curricula. Teacher training and development focused on gender equity and on integrating and ensuring equity in all learning activities is an important component to ensuring change and equity. Action research, an innovative teacher professional development model, involves teachers in designing and planning classroom research projects and reflecting upon the findings and implications with the support of colleagues. It creates grounded knowledge and understanding for teachers and the impetus to improve their teaching and learning.[18]

It is important for schools to go beyond equal access . . . by providing targeted opportunities to encourage girls.

Many teachers also need additional computer training themselves, to become comfortable with using computers and to develop ideas for integrating computers into what they are currently teaching. Collegial support will help to reduce some teachers' anxiety about using computers and to ensure equitable implementation.

Infusing equity schoolwide

It is important for schools to go beyond equal access in attempting to balance differences in exposure by providing targeted opportunities to encourage girls to be more involved with and persist in using computers. Girls should be educated and encouraged that mathematics and science are important and relevant to their lives. Mathematics and science teachers as well as guidance counselors can play a role in suggesting education and employment opportunities in technology-related fields. It is also important to develop partnerships between computer equity programs and organizations outside of the school, investigating and developing links with effective out-of-school programs such as Girls, Inc.'s Operation SMART™. Providing opportunities for students to support each other's efforts and to share their experiences, ideas, and resources helps, too. Partnerships with local business and industry can serve as resources for community involvement in schools, provide opportunities for students to interact with role models, and, perhaps provide some funding for innovative programs.

Principals, superintendents, and other school personnel should also be involved in promoting computer equity. Some ways to accomplish this goal include involving teachers and other school personnel, particularly females, in planning computer use as well as in the acquisition of computer hardware, software, and curriculum materials. King found that participation in planning activities resulted in higher levels of commitment to ensuring appropriate and equitable computer use in schools.[19]

Peer support

Friends and peers also play a role in students' interactions with computers. Especially in adolescence, girls are particularly sensitive to perceptions of themselves in terms of social acceptance. Sanders found that one reason girls were reluctant to join computer clubs was because their friends weren't there.[20] Therefore there is a need for girls to be supported and encouraged in their use of computers, for example, a girls' computer club or class period. In addition, peer training in which students, especially females, help and support each other in using classroom computers can make learning to use a computer a more comfortable and fun experience.

Role models and mentors

Girls define themselves through social interaction, connecting and communicating with others, more so than boys do,[21] and therefore, are more likely to avoid the computer they may have experienced as rigid, rule-based, and isolating from others. There is a need for role models to counterbalance the perceptions and images that imply that math, science, and technology are not relevant to girls' lives. There needs to be recognition for women who actively participate in using computers, as well as mechanisms for these women to mentor and serve as role models for girls. For example, a career day can showcase the contributions of women in computer and technology-related fields. In addition, women involved in computers from a range of occupations, including graphic design, writing, desktop publishing, architecture, and engineering, can be invited to share their experiences and challenges.

Parental support

Positive parental attitudes can influence the attitudes of children toward computers. There is evidence to suggest that parents tend to be more encouraging and supportive of boys' learning in mathematics than of girls' and there is some initial evidence that this may be true with regard to computers as well.[22] At home, a mother can be an important role model for her daughter since girls become more interested in computers when they see their mothers using them.[23] Parents need to encourage both daughters and sons in the use of computers, in terms of the time they spend together, and the types of activities and interactions they have around the computer. Parents should also talk with their children about what they are doing with computers in schools.

Need for research

Researchers need to focus on equity issues in investigating the effects and implications of computer use in schools. As computers become part of our society, it is imperative that we consider equity issues in relation to a tool that has wide educational, economic, social, and political impact.

While relatively few interventions exist, there is a need for review and dissemination of effective programs, more information on how interventions are working, why they are working, and how they could be adapted for other settings.

Rethinking gender equity in learning with computers

Achieving gender equity with respect to computers and learning is a challenge and requires the commitment and efforts of many players—teachers, school personnel, peers, parents, curriculum and software developers, educational researchers, and gender equity program developers—in promoting equity and changing the climate for computer equity in schools and in society. In addition, gender equity in learning with computers requires attention in a number of dimensions, including how computer access is determined and allocated, how computers are used, how the learning context is structured, how teachers interact with students around computers, how students interact with each other using computers, how parents value and support their children's use of computers, and how society depicts computer users. Often, equity issues are an "after-the-fact" or misunderstood consideration. But given what is known about gender bias in learning with computers, equity issues need to be an integral part of designing and planning effective education for students.

Equity issues need to be an integral part of designing and planning effective education for students.

Notes

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Maria-Paz Beltran Avery, author of "Reflections on the Intercultural Encounter" in the February 1992 issue, acknowledges the contributions of her colleagues at Interculture, Inc., in the definition of culture used in that article.

WEEA computer equity materials aid teachers

The Women's Educational Equity Act (WEEA) Program was one of the first programs to develop materials to enhance the math achievement of women. It continues to maintain this leadership by providing funds to explore the issue of gender equity and technology in various projects around the country.

WEEA Working Papers present in-depth discussions on cutting-edge issues in gender equity:
Teaching Mathematics Effectively and Equitably to Females $4.00 (#2744)
Building Self: Adolescent Girls and Self-Esteem $4.00 (#2745)
Legislation for Change: A Case Study of Title IX and the Women's Educational Equity Act Program $4.00 (#2749)

WEEA projects

Using innovative methods, a 1991 WEEA grantee, Collegiate Science and Technology Entry Program (CSTEP) at Onondaga Community College, integrates computers into the curriculum. The program supports students of color and low-income students (average age 32 years) who are potentially interested in or are pursuing careers in scientific, technical, or health fields. Also a current WEEA grantee, the Mathematics, Science, and Computer Careers for Rural Women: A Model for Educational Equity Project at Enterprise State Junior College, Alabama, offers educational activities in the areas of math, science, and computer science to seventh- and eighth-grade girls from a mainly rural area.

The Women's Action Alliance (WAA) utilized a WEEA grant to develop *The Neuter Computer: Computers for Girls and Boys*. This publication offers insights into how and why to encourage computer use by girls and close the computer gender gap. In a national field test of this book, girls' computer participation increased 144 percent in one term.

The Project on Equal Education Rights (PEER) of the NOW Legal Defense and Education Fund, using WEEA and other funds, developed *Debugging the Program: Computer Equity Strategies for the Classroom Teacher*. The kit includes a handbook containing excerpts from four outstanding computer equity curricula: *The Neuter Computer: Computers for Girls and Boys; Off and Running: The Computer Off Line Activities Book*, by EQUALS, Lawrence Hall of Science, University of California at Berkeley; *Project MICRO (Minority Computer Resource Opportunity)*, by the Southern Coalition for Educational Equity, Atlanta, Georgia; and *Pathways—An Introduction to Computers*, by Technical Education Research Centers, Cambridge, Massachusetts.

PEER's National Center for Computer Equity publishes the *Computer Equity Report* and other materials to help parents and community groups work for equity in their local communities. The center acts as a clearinghouse for information on model programs that have documented the effective use of computers in providing solutions to equity problems related to race, sex, and disability bias. It also serves as an advocate at the national level for planned investment in the future of all children through the equitable distribution of technological resources.

The Center for Educational Equity, a division of American Institutes for Research (AIR), received a WEEA grant to prepare a package of instructional strategies: *IDEAS for Equitable Computer Learning*. The package includes a survey for students to assess their computer experience at school and at home; an education self-assessment checklist; a resource paper on early childhood computer readiness for K–3 teachers; a paper on out-of-school computer access as an equity issue; and a bibliography on gender equity in computer use.

Continued p. 5, "WEEA computer equity materials"

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WEEA computer equity materials . . . continued

In addition, AIR, in conjunction with Big Brothers/Big Sisters of America, Inc., developed a pilot project called SISCOM that pairs children and their big sisters or brothers in a co-learning approach. SISCOM uses fun activities and games to expose little and big brother and sister matches to different uses for computers, to help them develop problem-solving skills, and to give them practice in using a variety of educational software programs.

WEEA publications
Add-Ventures for Girls: Building Math Confidence combines teacher development with strategies that work in teaching mathematics to girls and includes a chapter on computer equity issues. The chapter outlines the bias against girls in computer education and gives a list of questions for schools or specific teachers to assess the computer learning climate for girls at their school. It also offers strategies for making computer education more accessible to girls by making sure software is interesting for girls, by encouraging parent support, developing computer clubs, and ensuring that girls get as much time on the computer as boys.

The Sky's the Limit in Math-Related Careers educates high school students about careers in math and science. Women working in computer science, engineering, and other math-related fields offer lively anecdotes, viewpoints, and inside information about their careers. *The Sky's the Limit* offers a chapter that details various types of careers in the field of computers.

Other projects of interest
Pathways for Women in the Sciences at Wellesley College Center for Research on Women is researching the barriers that prevent women from entering and remaining in scientific careers and the factors that would support a culture of success for creating women scientists. At the end of the study, "The Wellesley Report" will be issued and will serve as the basis for a conference to share findings with higher education, business, government, and private foundations.

The corporate-funded Computer Equity Expert Project at the Women's Action Alliance aims to reduce girls' computer avoidance. Two hundred educational trainers—specialists in computer education, gender equity, mathematics and/or science--attended six-day seminars where they acquired a feminist analysis of math and science, received instruction in gender equity in education, in girls and women in mathematics and science, in educational technology, and honed their training skills. The Computer Equity Expert Project has also established the Computer Equity Electronic Network and publishes a newsletter, *Computer Equity News*.

Listed below are the products and projects mentioned in this article. The WEEA Publishing Center materials may be purchased by mailing a check or money order for the amount of the order (plus $2 shipping for orders under $25; $4 for orders $25 and over) to the WEEA Publishing Center. To order by phone, using MasterCard, Visa, or purchase orders over $25, or for information on additional resources available through the WEEA Publishing Center, call 800-225-3088 (in Massachusetts call 617-969-7100).

WEEA products

Add-Ventures for Girls: Building Math Confidence, #2709 elementary $25.00; #2710 middle school $28.00

The Sky's the Limit in Math-Related Careers, #2237 $6.75

WEEA-funded projects

Mathematics, Science, and Computer Careers for Rural Women: A Model for Educational Equity
Dr. Tim Alford
Enterprise State Junior College
P.O. Box 1300, Enterprise, AL 36331
(205)347-2623

Collegiate Science and Technology Entry Program
Stuart Weinberg
CSTEP
Onondaga Community College
Route 173, Syracuse, NY 13215
(315)469-2475

The Neuter Computer: Computers for Girls and Boys
Women's Action Alliance, Inc.
370 Lexington Avenue, Suite 603
New York, NY 10017
(212)532-8330

Debugging the Program: Computer Equity Strategies for the Classroom Teacher
The Project on Equal Education Rights (PEER)
NOW Legal Defense and Education Fund
99 Hudson Street, New York, NY 10013
(212)925-6635

IDEAS for Equitable Computer Learning
SISCOM (Co-learning Computer Instructional Models)
American Institutes for Research
Center for Educational Equity
Box 1113, Palo Alto, CA 94302
(415)493-3550

Other projects

Pathways for Women in the Sciences
The Pathways Project
Center for Research on Women
Wellesley College, Wellesley, MA 02181-8529
(617)235-0320

The Computer Equity Expert Project
Women's Action Alliance
370 Lexington Avenue, Suite 603
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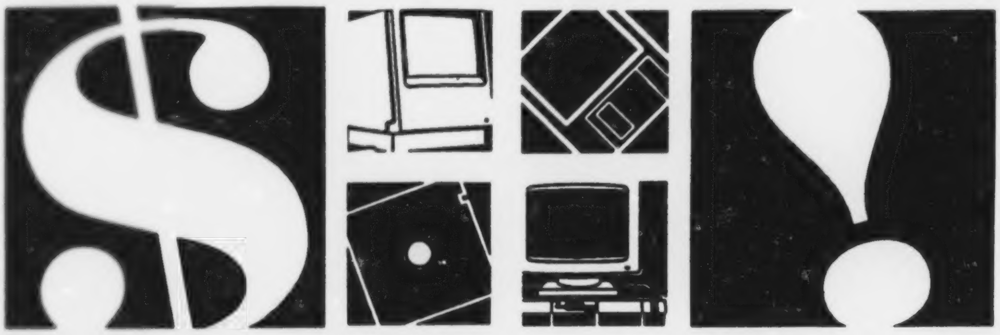

A Truly Empowering Technology-Rich Education—How Much Will It Cost?

by Henry Jay Becker

A leading educational researcher argues that funding technology means investing in people.

For the past decade, schools around the world have been spending large fractions of their discretionary funds on computer technology and related software and instructional preparation. Every year, for example, schools in the United States purchase 300,000 to 500,000 computers and spend millions of dollars on software. Numerous schools have been established as "technology magnets" or "model technology schools" with even substantially more equipment and software than schools typically receive. Yet the typical experience of most school children each year is to have limited experience with using computers—computers that in many cases are technologically 15 years old, and far more limited than the powerful, fast, video- and CD-ROM-linked personal computer systems advertised in today's educational technology publications.

More importantly, survey data are clear that the kinds of experiences which most students have with school computers are hardly revolutionary—worksheet drills, entertaining diversions, or re-copying hand written text so that it is more easily read. Although there has been a strong growth in the use of computers for word processing, most teachers have too few computers to provide computer-based writing opportunities to whole classrooms. Moreover, even if they had those computers, schools would have to make major changes in the allocation of time during the school day to provide enough opportunities for students to do that amount of writing.

All reform efforts that putatively improve instructional practice call for similar levels of added expenditure, whether technology-based or not.

The promises of electronic information technology still beckon, and even more convincingly than in the early days of school computer use. There is now a clearer and more broadly supported vision of how instruction and learning should be changed in schools. Components of this vision include students actively engaged in collaborative project-based learning attending to subject-matter that is meaningful and important to the student. It involves students gathering information from diverse sources well beyond the classroom textbook and school library, doing intensive analysis and substantial writing, and making a public presentation of conclusions for a specific audience and specific purpose.

With even current technology, students in elementary and secondary classrooms can themselves become creators of educational products using menu-driven program-generating environments such as *HyperCard*; they can access volumes of video- and text-based information two

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This is a revised version of a paper presented at the 10th International Conference on Technology and Education, Cambridge, Massachusetts, March, 1993.

orders of magnitude greater than floppy-disk-based CAI. systems; they can communicate electronically with schools and students all over the world, with scientists engaged in real-world inquiry, and with databases of enormous magnitude; and they can use analysis and exploration tools such as collaborative writing programs, graphical modeling tools to assess mathematical propositions, and microcomputer-based laboratories to collect scientific data and experience true scientific inquiry.

The capacity of schools to provide these kinds of learning experiences to all of their students will require a tremendous investment. And the investments go well beyond replacing outdated computer equipment with new hardware and software. What is involved here is more than just the substitution of traditional learning media with new ones, but a revolution in what teachers understand to be the methods and goals of instruction and the standards for student accomplishment.

What is involved here is more than just the substitution of traditional learning media with new ones, but a revolution in what teachers understand to be the methods and goals of instruction and the standards for student accomplishment.

Although schools and society have a long way to go to see this new vision through to widespread implementation, we can learn a great deal about the conditions and resources necessary to support these changes from studies of "exemplary" current teachers who have taken major steps to use technology to achieve new learning goals. Research from a national survey of computer-using teachers found that the most exemplary computer-users do not just have more of the best and newest computer technology—although they do have that as well. Exemplary computer-using teachers practice in a teaching environment characterized by a great deal of support for instructional change (Becker, in press). Specifically, exemplary computer-using teachers are much more likely than other computer users to be working in:

1. A school where there is a strong social network of many computer-using teachers who themselves have gained expertise through extensive computer experience.
2. A school with a full-time technology coordinator on staff, and, in particular, a coordinator active in promoting computer use among other teachers.
3. A district that provides them and other teachers with substantial formal staff development for a) using tool-based software, and b) using technology specifically within their own curriculum.
4. A school that has made a long-term commitment to students using word-processing—not just learning word processing in a computer applications class, but using word-processing in subject-matter classes and for productive ends outside of class, such as for the school newspaper and yearbook.
5. A school with policies assuring equity of computer access between boys and girls and among students with different levels of academic preparation.
6. A school where the pattern of computer use extends technology beyhond basic math, language arts, and computer literacy to social studies, the fine arts, and business and industrial arts education.
7. An environment that somehow allocates time at school for teachers to use school computers themselves, not just to preview software but for their own professional tasks such as information retrieval, lesson preparation, and communication with colleagues.
8. A school that, as a result of more extensive use of its computer facilities, is faced with additional maintenance and coordination problems that are lacking in schools without exemplary computer-using teachers.
9. Perhaps most costly of all, smaller class sizes for computer-using teachers.

In addition, exemplary computer-using teachers themselves have more substantial educational backgrounds; in this study, they were much more likely to have majored in liberal arts subjects rather than simply education and were more likely to have advanced degrees. All this is in addition to exemplary teachers having more computer equipment available and a much greater variety of software and other technology-related materials.

Clearly, schools wanting to create an environment where exemplary teachers exploit the potential benefits of information technology must consider the costs they will incur to accomplish this goal. The out-of-pocket costs for equipment and instructional materials are commonly costed out (albeit, most often, incorrectly as one-time expenditures). But the less visible and more intangible costs of developing expertise in teachers and providing them the opportunity to use that technology must also be estimated. Indeed, my rough estimation of those costs suggests that these personnel-related costs may be greater in magnitude than the hardware/software costs—even when the latter are considered as recurring costs to account for the inevitable upgrading that will routinely occur because of new capabilities provided by the technology.

The estimates shown in Table 1 ought to be regarded as a quick initial pass at these issues. They assume a school of 800 students (rather large for an elementary school, but substantially smaller than the typical high school). The faculty size assumed for this hypothetical school is 40 full-time equivalents (FTE). To simplify calculations, all personnel costs assume $50,000 per person per year including benefits and administrative personnel support. The estimates leave out a great deal—for ex-

269

Type of Personnel Support Required Description and Calculation	Total Annual Cost
Support for Interpersonal Networks Time for teachers to work together, planning facilities use, and educating each other in new applications and capabilities: 2 hours/week x 40 teachers.	$100,000.
Full-time Technology Coordinators Two professional staff members for a school staff of 40 teachers.	$100,000.
Staff Development Formal instruction for groups of teachers of the same subject: 10 days/year for 20 teachers. Costs of release time and trainers' salaries.	$60,000.
Word-processing Support Development and maintenance of technology support for writing across curriculum, school newspaper, and yearbook, 0.2 FTE	$10,000.
Equity Support Support for allocating effective computer access for girls and lower-performing students. 0.2 FTE	$10,000.
Support for New Subjects Development and maintenance of technology support for industrial arts, fine arts, social studies, other subjects with low initial utilization. 0.2 FTE	$10,000.
Teacher Access Time for teachers to use school computer themselves: lesson planning and own professional utilization. 5 hours/week x 40 teachers	$250,000.
Maintenance/Coordination Technical support for 40 teachers: 2 FTE	$60,000.
Smaller Class Sizes Reducing class sizes from 25 to 20 per teacher: increase of 10 FTE teachers.	$500,000.
Total	$1,100,000.
Total Per Pupil Expenditure	$1,375.

Table 1: Estimated annual personnel costs for developing expertise in technology use among teachers (hypothetical school of 800 students).

The central barrier the researchers saw to implementing major teaching innovations was the problem of scheduling formal planning and staff development activities in ways that didn't interfere with teaching obligations or non-work commitments.

ample, the cost of developing expertise among the non-teaching staff—and are meant to stimulate the thinking of administrators and teachers who are closer to their own particular setting than am I.

The entries in Table 1 correspond to the nine factors found by our research to distinguish the environments of exemplary computer-using teachers from those of other computer-using teachers. The magnitude of the costs are based on a considered judgment, but clearly are subject to varying points of view. In particular, though, the assumption of the need for 25% more teachers to create 20% smaller class sizes comes from the research data on the difference in class size between the teachers judged as exemplary and all other computer-using teachers.

Table 1 suggests that the largest personnel-related costs for empowering teachers to become exemplary users of technology are for smaller class sizes and for greater personal access to school computers for lesson preparation and other professional use. In addition, substantial costs will be incurred in two other ar-

Type of Equipment/ Material Required	Description and Calculation	Total Annual Cost
Computers	80 per year (bringing the stock to 400 in 4 years). After that point, 80 per year replacement due to obsolescence. Each computer @ $1,250.	$100,000.
Other Hardware	Network cabling and computers, printers, video-related hardware, telecommunications, digital storage @ 40 classrooms x $1,000/year.	$40,000.
Software/Other Technology Materials	For 80 new computers per year, $1,000. 320 existing computers per year, $250. 40 classroom per year (teacher directed): $1,000.	$200,000.
Maintenance	Estimated as 15% of total capital expense of equipment spent for any 5-year period.	$105,000.
Total		$445,000.
Total Per Pupil Expenditure		$556.25

Table 2: Estimated annual hardware and software costs for developing expertise in technology use among teachers (hypothetical school of 800 students).

School technology advocates need not hide (from themselves or from others) the true costs of effectively implementing technology in school settings. Indeed, by not facing up these true costs, they are likely to insure the failure of their approach.

eas: a) staffing each school with full-time computer coordinators to support all teachers' use of technology; and b) providing time for enabling teachers to work collaboratively to improve each other's technology-related competencies.

Altogether, we estimate the annual additional personnel costs for this hypothetical school to be $1.1 million, or $1,375 in additional per pupil expenditures.

In addition to these personnel costs, there are, of course, the more commonly considered hardware, software, and maintenance costs. Table 2 provides one estimate for these for our hypothetical school. These estimates assume that the school now has 80 computers (a 10:1 student:computer ratio; roughly the national average) and will need to have 400 computers (a 2:1 ratio) within four years. But the estimates also assume that because of continual improvements in the capacity of information technology equipment, an annual replacement of 80 computers should be budgeted. So the purchase of 80 computers is seen here as an annual expense rather than as a one-time expense.

In addition, quite a large variety of other information-technology-related hardware would be required in this model of widespread and curriculum-driven exemplary utilization. This includes such elements as network cabling and hardware; printers, scanners, and other digital-hard-copy translation devices; satellite dishes, telephones, and other telecommunications facilities; camcorders, video-playback, and projection equipment for whole-class presentations; and digital storage media. Those elements are all included as a mixed hardware category for which annual expenditures are also assumed. Finally, Table 2 incorporates annual estimates for software and other technology-related instructional material and for maintenance.

The total annual cost estimated from these hardware and software components in Table 2 is $445,000 or $556.25 per student. Even with the rather expansive assumptions made in Figure 2 (e.g., $105,000 in maintenance per year), the total for all hardware and software expenditures is less than one-half (actually, exactly two-fifths) as much as the total estimated for personnel costs related to empowering a teaching staff to become exemplary technology users.

From one perspective, these costs seem huge. The total costs shown in Tables 1 and 2 come to nearly $2,000 per student per year in addition to current educational expenditures. On the other hand, districts now differ from one another by much more than $2,000 per student per year. So spending that much in a low-spending district merely brings its level of educational investment up to the level of the current spending of a modestly-high spending district.

Moreover, it is quite clear that making substantial improvements in educational outcomes will not come cheaply under any circumstance. True, there are plenty of non-technology approaches that have been advocated for improving education outcomes. Schools might invest, for example, in smaller classes for teachers (but not specifically for using computers); of in systematic and ongoing inservice training and supervision (on topics other than cally for using computers); of in systematic and ongoing inservice training and supervision (on topics other than technology); or in larger salaries to recruit smarter teachers (who don't particularly have interest in technology); or in restructuring to give teachers fewer class hours and more planning responsibilities (that do not involve computers); or in innovative print-based curriculum materials. But all these reform efforts that putatively improve instructional practice cost money too—indeed, they all call for similar levels of added expenditure whether technology-based learning approaches are contemplated or not.

For example, Theobald and Nelson (1992) investigated five schools attempting to implement Sizer's Coalition of Essential Schools model for secondary school organization and instruction. That model involves large-scale changes in what teachers are expected to do as instructors and how the school is organized to provide a schedule of activities and assessment for varied students. The degree of change is not unlike what is envisioned when large-scale technology utilization is seen as the central vehicle of change. The researchers concluded that "the financial, human, and political costs involved in fundamentally restructuring a secondary school are enormous and involve almost every aspect of the school's program." The effort at these schools involved teachers in observing other teachers using new pedagogical practices, conversing extensively with peers and instructional leaders to come to understand the rationale for these changed practices, learning about and creating new curriculum materials that embodied these new teaching practices, working collaboratively with other teachers to implement them, and obtaining education about technology to support these new practices.

The central barrier the researchers saw to implementing major teaching innovations was the problem of scheduling formal planning and staff development activities in ways that didn't interfere with teaching obligations or with non-work commitments after school and on weekends. In order to accommodate those activities into people's schedules, teachers had to be compensated for off-hour activities and substitute classroom supervision had to be budgeted for school-hour activities. It is one thing to obtain short-term contributions of extra effort and time among a group of volunteers who are already committed to a specific change being planned. It is quite another to substantially raise the complexity of teaching practice for a school facility as a whole and to maintain that level over multiple years.

School technology advocates need not hide (from themselves or from others) the true costs of effectively implementing technology in school settings. Indeed, by not facing up these true costs, they are likely to insure the failure of their approach, and to increase the voices heard against investments in technology. It is vital that the possibilities that computers and video can provide to the renewal of school learning be allowed to come to fruition. To do that, planning must incorporate expectations and budgets for the kinds of expenditures that permit average teachers to become exemplary users of these extraordinary resources for learning. Δ

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School
to
Work

Integrating Academic and Vocational Education

- Achieving the overall aim of Goals 2000, to provide every student with the opportunity to receive a world-class education, will require fundamental changes in American education. An important dimension of this change process is that all students will be expected to meet new learning and occupational standards.
- Integration of academic and vocational education is a new way of learning for all students. Students learn better when a subject is placed in a context that is meaningful to them and related to the world outside of school.
- By focusing on the connections between challenging academic content and occupational skills, schools can motivate students by showing them that their learning is relevant to their current and future lives. Schools can thus enable all students to achieve standards that are truly world class.

Young people used to find it much easier to enter the job market than they do today. Students who enter today's workforce must be equipped with both basic and higher order academic skills and occupational training to enable them to find employment with career potential. High school programs should help students acquire the skills and work experience they need to qualify for jobs that require high skills and pay high wages as well as to pursue additional training and education. One of the keys to preparing students for future employment opportunities and career development is integrating academic and vocational education. Integration of academic and vocational education is a new way of learning for all students. Together, academic and vocational instruction are partners in the larger enterprise of providing our young people with an education suited to the diverse intellectual and vocational challenges of the 21st century.

What is meant by integrating academic and vocational education?

Integrating academic and vocational education is the deliberate effort by educators to break down the traditional and counter-productive segregation between academic and vocational learning by blending training in vocational skills with instruction in basic and higher order skills. Such learning methods connect the content in subjects like mathematics, science, or English with the application of knowledge and skills to real-life situations. As it becomes increasingly evident that what students learn significantly determines what they earn, these methods are attracting the attention of more and more educators and employers.

A major thrust of Goals 2000 is to improve the link between education and employment by creating a framework to help young people gear up for high-wage, high-skills jobs and lifelong learning. As such, planning teams participating in Goals 2000 will think through and incorporate strategies that coordinate academic and vocational integration in their

This paper is offered to stimulate discussion and thinking in one of the key components to be included in Goals 2000: Educate America Act plans. We welcome revisions and suggestions for examples of effective state and local practices for future editions. Please send your comments to: Goals 2000; U.S. Department of Education; 400 Maryland Avenue, SW; Washington, DC 20202.

comprehensive plans. Similar efforts to weave work-based instruction into school curricula will be undertaken by state and local partnerships working to tightening the link between what students learn at school and at worksites as part of the School-to-Work Initiative.

Why is integrating academic and vocational studies important in Goals 2000 plans?

The overall aim of the Goals 2000: Educate America Act is to provide every student with the opportunity to receive a world-class education. Achieving this goal will require fundamental changes in American education. An important dimension of this change process is that all students will be expected to meet new learning and occupational standards. Critical to building a world-class education system that prepares students for high-skill, high-wage jobs is the notion that students must have a firm grounding in core academic subjects and skills. Every student needs to acquire an education that is more strongly connected to the skills and competencies that will be required of them in the workforce. Almost all young people in today's international marketplace will need some postsecondary education at some point in their adult life. Consequently, they need a solid base of skills not only for immediate use in promising careers but also for additional postsecondary education. The Goals 2000 legislation is helping to ensure that students will obtain the appropriate occupational skills. Title IV of the legislation establishes a National Skills Standards Board which will promote a voluntary system of national skills standards and certification to help provide a high-quality workforce for the future. At the same time, the School-to-Work Initiative will stimulate the development of statewide school-to-work systems to help youth make the transition from school to the workplace and improve traditional academic learning by contributing the insights of the best vocational and technical education programs. All students will benefit—equity demands that these learning opportunities be extended to every student.

Making the connection between achievement in academic classes and success in the world of work represents a challenging opportunity for all students to see the connection between their academic courses and future job prospects. Building better connections between school and work is the focus of recent reform initiatives, including the School-to-Work Initiative. School-to-Work Opportunities transition programs will integrate academic and vocational instruction as part of a larger plan to link what is learned in the classroom with what students need to find good jobs. At the completion of a school-to-work program, students will have not only a high school diploma but also a portable, industry-recognized skill certificate. And, perhaps more important, these students also will have either a first job on a career ladder or access to further training, including completion of degrees in a wide variety of both academic and professional fields at 2- and 4-year colleges and universities. Goals 2000 and School-to-Work Initiative are interrelated—both focus on setting standards and aligning the educational system to help students meet these standards. The Goals 2000 Act recognizes this connection and includes coordination with school-to-work as a plan component, thereby reinforcing the notion that school-to-work is not an end in itself. It provides yet another opportunity for every American—regardless of age or past educational or training experience—to focus and explore his or her educational and career possibilities. And, as such, it is fully consistent with achieving the goals of a challenging workforce eligibility and postsecondary education.

How can these ideas be put into practice?

States and local school districts can successfully integrate academic and vocational studies in ways that best make sense for their students, resources, and labor markets. As a result, there is no single model that applies to all schools. There are multiple approaches to integration, including the following:

- **Contextual learning**. Opportunities can be created for students to learn in a real-life context. Unlike a traditional approach to learning, contextual learning is connected to actual situations; academic learning is presented in the context of its application to students' lives and future employment opportunities. Using this approach, a math or computer science teacher, for example, would present a particular math concept in terms of what students need to know to operate the high-tech equipment that companies rely on to stay competitive in today's fast-changing workplace as well as relate to prerequisites for participating in community and technical colleges.

- **Revised curricula for both academic and vocational courses**. Academic courses can be revised to place more emphasis on the application of course content to occupational skills and knowledge. Similarly, vocational courses can be revised to emphasize, for example, the scientific theories behind mechanical processes. Regardless of the field, vocational skills can be connected to broader, more abstract material taught in academic courses. One way this can happen is when two or more teachers, from both academic and vocational sides, "align" the curriculum by coordinating curricula so that courses reinforce each other.
- **Special thematic "magnet" school or "academies."** Special school programs that focus on a cluster of occupations and coordinate academic and vocational course work can be established and made available via an application process to interested students throughout a district or state. Within such programs, the entire curriculum centers on a particular career field, such as banking, electronics, health services, computers, or business. In addition to learning career-specific skills, students take courses in traditional academic subjects, which are specially designed to draw connections to the academy's career theme. Students also often supplement classroom learning with on-the-job training. This course of study provides students not only with enough job-specific training to enter the job market upon graduation but also with a strong enough academic background to enable them to enroll in 2- or 4-year postsecondary institutions.

The theme running through these different strategies is that the separation between "academic" and "vocational" education is an artificial one. Just as knowledge acquired in a classroom in any subject has applications in the world outside the school walls, job-specific skills and knowledge stem from broader concepts that cut across different occupations. By focusing on these vital connections, schools can motivate students by showing them that their learning is relevant to their current and future lives. Schools can thus enable all students to achieve standards that are truly world class.

What are examples of promising strategies and programs?

Pasadena Graphic Arts Academy
Pasadena, California

The Pasadena Graphics Arts Academy is one of California's flagship school-to-work transition programs. Focusing on printing and graphic arts, the program was initiated by businesses in the Pasadena area and is one of three pilot programs in the state that has received funding from the California Youth Apprenticeship Steering Committee. In the fall of 1992, Pasadena Unified School District was awarded a $220,000 grant from the U.S. Department of Education to replicate its Graphics Arts Academy.

The program follows the high school academy model of a "school-within-a school," and is expanding to a "2 + 2" youth apprenticeship model. The academy model creates a school-within-a-school organized around an occupational theme. Participating students take the majority of their classes together and are taught by a team of teachers. At the Pasadena Graphic Arts Academy, incoming seniors work up to 5 weeks, or 20 hours per week, in the printing industry during the summer. This is a paid experience, with JTPA funds used to pay stipends to eligible students. A newly developed work-related curriculum guides these students during the summer. Students are matched with mentors provided by the Printing Industry Association (PIA) of Southern California, which is the trade association that sponsors this academy. Pasadena City Community College serves as a training site for Pasadena Graphic Arts Academy seniors. Eleventh graders participate in unpaid, exploratory internships in industry a half day every other Friday. Students who complete the program will "have preference in job placement" with PIA members.

Oakland Health and Bioscience Academy
Oakland, California

Built on the "career academy" concept, the Oakland Health and Bioscience Academy prepares students for a wide range of health and bioscience careers. Much of the Academy's success is linked to the support and cooperation of an interested community. Academy teachers, for example, have worked closely with staff from the community colleges and area hospitals to link classroom learning with work experience. One community college is working to develop a project with the Academy and other area schools that would permit students to earn community college credit in anatomy and physiology through the Academy courses. The Academy is also working with at least one area hospital to develop formal clinical apprenticeships.

A recently released report on academy programs noted that students at the Oakland Academy had scores in reading, language, and math above those of other students from similar backgrounds.

The Applied Academics Program: Montgomery County (Ohio) Joint Vocational School
Clayton, Ohio

The applied academics program at the Montgomery County (Ohio) Joint Vocational School (JVS) extends the school's regular academic course offerings beyond those that fulfill the requirement that all students take one unit of English in their junior year and one unit of social studies in their senior year in order to graduate. Academically and vocationally certified teachers team-teach courses in communications, mathematics, and physics, emphasizing job-related competencies and skills. Typically, the applied academic skills taught in mathematics and communications courses have been drawn from vocational curricula and competency lists established by business and industry in the area. Because few students who attend JVS continue with further education or training, the applied academics programs give them a strong foundation for finding a good, entry-level position.

Pickens County Youth Apprenticeship Program
Easley, South Carolina

According to the project coordinator of the Pickens County Youth Apprenticeship Program, the goal of the program is to help high school students prepare for "mid-level technology positions." The program is designed as a "2 + 2" program and is linked with Tri-County Technical College and two other local community colleges where students can take classes to receive associate degrees while continuing work at their youth apprenticeship placement. Students are placed in youth apprenticeships in computer electronics, automotive services, business management, and industrial electricity.

Students enter the youth apprenticeship program in 11th grade, based on the results of a career placement test taken at the end of 10th grade, and on other factors including grade point average and attendance record. During the 11th grade, participants follow a Tech Prep curriculum designed to prepare them for job placement. In the fall semester of 12th grade, students must apply for paid youth apprenticeship positions with participating businesses, which must make a 3-year commitment to the program. In addition to providing a mentor who must attend mentor training sessions, participating businesses must pay the students an hourly wage. All students receive more than the minimum wage, with the average wage being $6 per hour. Students usually enter the workplace in February and are matched with a trained mentor. During the 12th grade, students spend mornings at their regular high school, one afternoon each week at the Career Center, and the rest of their afternoons at the worksite. Students can work up to 20 hours a week at the worksite. Students who complete the program receive a certificate of workplace competence and a certificate of advanced standing from the business where they worked.

Where can I get more information?

Applied Academics Program
Montgomery County Joint Vocational School
Carol A. Gellner, Director of Instructional
Development
6800 Hoke Road
Clayton, OH 45315
(513) 837-7781

Institute on Education and Training
Rand Corporation
1700 Main Street
Santa Monica, CA 90407-2138
(213) 393-0411

National Advisory Council on Work-Based Learning
200 Constitution Avenue
Washington, DC 20210
(202) 535-0540

National Center for Research in Vocational
Education
University of California, Berkeley
Graduate School of Education
Berkeley, CA 94704
(415) 642-4004

Oakland Health and Bioscience Academy
Oakland Technical High School
Patricia Clark, Project Director
4351 Broadway
Oakland, CA 94611
(510) 658-5300

Pasadena High School
Mark Hall, Youth Apprenticeship Coordinator
2925 East Sierra Madrid Boulevard
Pasadena, CA 91107
(818) 798-8901

Pickens County Youth Apprenticeship Program
Francis Stokes, Project Coordinator
Pickens County School District
Easley, SC
(803) 855-8195

Southern Regional Education Board (SREB)
592 10th Street NW
Atlanta, GA 30318-5790
(404) 875-9211

Reading List

Adelman, N.E. (February 1989). *The Case for Integrating Academic and Vocational Education.* Washington, DC: Policy Studies Associates, Inc., for the U.S. Department of Education.

Bottoms, G., Presson, A., & Johnson. (1992). *Making High Schools Work Through Integration of Academic and Vocational Education.* Atlanta, GA: Southern Regional Education Board.

Grubb, W.N., Davis, G., & Lum, J. (1991). *The Cunning Hand, the Cultured Mind: Models for Integrating Vocational and Academic Education.* Berkeley: National Center for Research in Vocational Education, University of California, Berkeley.

SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION ★ U.S. DEPARTMENT OF LABOR

FACT SHEET

CREATING A SCHOOL-TO-WORK OPPORTUNITIES SYSTEM

A Revolutionary New Approach to Education

The School-to-Work Opportunities Act establishes a national framework to broaden the educational, career and economic opportunities for all youth through partnerships between businesses, schools, community-based organizations, and state and local governments.

Why Is It Needed?

The United States is one of only a few industrialized nations that does not have an organized, comprehensive system to help young people prepare for and enter the workforce. Because of the increasing demands of a highly competitive global economy, employers have difficulty finding workers with the academic, analytical and technical skills they need.

Under the School-to-Work Opportunities Act, workplaces become active learning environments. Employers become joint partners with educators to train students through paid work experiences for jobs that exist in the local economy. Schools, in turn, will challenge all students to higher academic and skill standards and help them identify career majors.

Part of Education Reform

School-to-work transitioning means significant changes in the way teachers teach and students learn in our schools. It involves systemic restructuring called for in GOALS 2000—the cornerstone of the Administration's initiative to identify and classify the skills workers need to perform successfully in the workplace. The School-to-Work Opportunities Act encourages states to coordinate their school-to-work plans with the overall education reforms they are planning with GOALS 2000 funding.

The Importance of State and Local Partnerships

School-to-work is not a top-down mandate of the federal government. It is a movement that must spring from strong partnerships at the state and local community level. By working together, employers, educators, parents, labor unions, community-based organizations and others will design and implement systems tailored to meet their specific needs.

For All Youth

All young people benefit from a school-to-work experience, including:

- Immediately College-Bound
- Immediately Career-Bound
- Out-of-School Youth
- Students with Disabilities
- Limited-English Proficient Students
- Students with Diverse and Disadvantaged Backgrounds
- Academically Talented

Core Elements

The Act requires that every School-to-Work Opportunities system contain three core elements:

- **School-based Learning**

  Classroom instruction that integrates work and school-based learning and is based on high academic and occupational skill standards.

- **Work-Based Learning**

  Work experience, structured training and mentoring at job sites.

- **Connecting Activities**

  A variety of activities that build and maintain bridges between school and work. Examples include matching students with participating employers, and training job-site mentors and teachers.

Key Characteristics

The legislation requires School-to-Work Opportunities systems to include the following school-based, work-based and connecting components:

- A planned program of training and work experiences coordinated with school-based learning.
- A program of study designed to meet the same academic content standards the state has established for all students, including, where applicable, standards established under GOALS 2000, and to meet the requirements necessary to prepare a student for postsecondary education and achievement of a skills certificate.

- A program of instruction and curriculum that integrates academic and vocational learning.
- Broad instruction in the classroom and workplace that, to the extent practicable, exposes students to all aspects of an industry.
- Effective secondary-postsecondary linkages.
- Career awareness, exploration and counseling.
- Initial selection of a career major not later than the beginning of eleventh grade.
- Workplace mentoring and instruction in general workplace competencies.
- Assistance for students in finding jobs and continuing their education and training.

The Payoff

STUDENTS will have at least two portable and validated credentials upon graduation: a high-school diploma and a skill certificate which is recognized by employers. Many will also receive a two-year college degree.

EMPLOYERS will have access to a highly trained and versatile workforce, certified and knowledgable in all aspects of an industry.

AMERICA will have a competent, trained and highly educated workforce capable of performing at high levels and prospering in a competitive global economy.

For further information, contact your state school-to-work liaison, the Education or Labor regional office that serves your state, or the national School-to-Work Opportunities Information Center, 202/260-7278.

(July 14, 1994)

SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION U.S. DEPARTMENT OF LABOR

FACT SHEET

GOALS 2000 AND SCHOOL-TO-WORK OPPORTUNITIES

GOALS 2000: the Educate America Act was signed into law by the President on March 31, 1994. That new law provides resources to states and communities to ensure that all students reach their full potential. It is based on a simple idea: when more is expected of students, they work harder and reach higher levels of achievement.

GOALS 2000 and School-to-Work Opportunities are closely linked in several substantive ways: both advocate high academic and occupational skill standards, and both contain systemic reform as an inherent part of their implementation. A description of these "bridge" areas follows.

Bridges Between GOALS 2000 and School-to-Work

○ High Academic Standards

GOALS 2000 establishes a framework to identify world-class academic standards, to measure students' progress, and to offer the support students may need to meet them. The School-to-Work Opportunities Act states that students in school-to-work systems would be expected to follow a program of study that meets state academic content standards and, where applicable, the high academic standards set in GOALS 2000.

GOALS 2000 establishes a National Education Standards and Improvement Council to examine and certify voluntary national and state content, student performance, and opportunity-to-learn standards, and assessment systems submitted by states on a voluntary basis. It also authorizes grants to support the development of voluntary model opportunity-to-learn standards.

The movement to develop voluntary national standards has already begun. The National Council of Teachers of Mathematics has prepared mathematics standards, and the U.S. Department of Education is funding creation of standards in the arts, civics and government, English language arts, foreign languages, geography, history and science. These standards will clearly identify what all students should know and be able to do to live and work in the 21st century. The standards will be designed to be internationally competitive. A U.S. Department of Education booklet titled "High Standards for All" describes the standards-setting process and status for each subject area, and is available from the GOALS 2000 Information Resource Center, 1-800-USA LEARN.

○ Occupational Skill Standards

GOALS 2000 also creates a National Skill Standards Board to facilitate development of rigorous occupational standards. That Board will identify broad occupational clusters and create a system of standards, assessment and certification for the skills needed in each area. This system of occupational skill standards and certification will serve as a cornerstone of the national strategy to enhance workforce skills. The Board will have significant representation from business, industry and labor.

Because of GOALS 2000, work-based and school-based training will culminate in award of a skills certificate and a high school diploma that mean something. The skills certificate will give students an industry-recognized and portable credential that indicates mastery of skills in specific occupations. A graduate from Alabama, for example, would be assured that her "biotechnology manufacturing certificate" will be honored and respected in Alaska. Since employers would offer the best jobs to those who met the standards and had attained a skill, students would have more incentive to perform well in school.

○ Systemic Reform.

GOALS 2000 is the first step toward making the federal government a supportive partner in state and local systemic reforms aimed at helping all children and young people reach high standards. Like school-to-work opportunities, GOALS 2000 will change the way teachers teach and students learn. Both involve restructuring, rescheduling, and rethinking traditional ways of doing business. Each will be more effective if the two are implemented in coordinated fashion.

Coordination

The School-to-Work Opportunities Act asks states to coordinate their school-to-work plans with the overall education reforms they are planning with GOALS 2000 funding. The aim is to promote greater coherence among federal programs and between federal programs and state and local education reforms.

For further information on School to-Work Opportunities, contact your state school-to-work liaison, the Education or Labor regional office that serves your state, or the national School-to-Work Opportunities Information Center, 202/ 260-7278.

For additional information on GOALS 2000, call the GOALS 2000 Information Resource Center, 1-800-USA-LEARN.

(revised 7-29-94)

SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION U.S. DEPARTMENT OF LABOR

FACT SHEET

GRANTS TO STATES AND LOCAL COMMUNITIES

PURPOSE

A key provision of the School-to-Work Opportunities Act is its authorization of grants to help states and communities build comprehensive school-to-work systems. Such systems will offer young Americans opportunities to prepare for high-skill, high-wage careers, to receive a top-quality academic education, and to pursue further education or training. School-to-work systems will also provide American businesses with the trained workers they'll need to stay globally competitive.

AVAILABLE FUNDS

Funds available in the current fiscal year (1994) total $100 million. Of this amount, at least $90 million will be used for grants to states and communities, including grants to local partnerships and partnerships in urban and rural high poverty areas and for programs in Native American communities and U.S. territories. The president requested $300 million for fiscal year 1995, at least 90 percent of which is earmarked for grants.

STATE GRANTS

○ State Development Grants

These grants will enable states to develop comprehensive statewide School-to-Work Opportunities plans. Possible state development activities include:

- -- Identifying or establishing broad-based partnerships among employers, labor, education, government, and community organizations to participate in the design, development, and administration of School-to-Work Opportunities programs;
- -- Designing challenging curricula;
- -- Supporting local School-to-Work Opportunities planning and development activities.

Status:

All states received development grants in 1994 of between $200,000 and $750,000. These grants may be extended and funds added in subsequent years for states that have not received an implementation grant and that continue to make significant progress.

○ State Implementation Grants

These grants are competitively awarded to states that can demonstrate substantial ability to begin full-scale implementation of the statewide plan. Among the activities states may undertake with these grants are:

- -- Recruiting and providing assistance to employers to provide work-based learning for students;

- -- Providing training for teachers, employers, workplace mentors, counselors, and others;
- -- Working with localities to develop strategies to recruit and retain students in School-to-Work Opportunities programs, including students from diverse backgrounds.

Grantees must subgrant at least 65 percent of the awarded funds to local partnerships during the first year of the grant. After that, the percentage awarded to local partnerships will increase.

Status:

Announcement of this grant opportunity was published in the *Federal Register* on February 3, 1994. The first round of awards was announced on July 18, 1994, to Kentucky, Maine, Massachusetts, Michigan, New Jersey, New York, Oregon, and Wisconsin. In each of the three subsequent years, other states will be selected for funding. At the end of four years, all states will have received implementation grants. The next round of competition for implementation grants is scheduled to open in late 1994.

DIRECT FEDERAL GRANTS TO LOCAL PARTNERSHIPS

○ Local Partnership Grants

These competitive grants will directly support a number of local partnerships that have built a sound planning and development base and are ready to implement local School-to-Work Opportunities initiatives. Grants will be awarded to partnerships that consist of employers, public secondary and postsecondary educational institutions or agencies, and labor organizations or non-managerial employee representatives, as well as other entities appropriate to the local initiative such as registered apprenticeship agencies.

Status:

Announcement of this grant opportunity was made in the *Federal Register* on March 9, 1994. Applications were due on May 9. Announcement of awards to 15-25 communities, totaling approximately $14 million, is expected by mid-August 1994. These grants may be renewed on an annual basis until the state in which the partnership is located is in the second year of a State Implementation Grant. The 1995 round of competition is scheduled to begin in late 1994 or early 1995.

○ Urban/Rural Opportunities Grants

These grants, also to be awarded competitively, will enable development and implementation of School-to-Work Opportunities programs in urban and rural areas with high rates of poverty.

Status:

A notice inviting applications was published in the *Federal Register* on June 20, 1994. The deadline for filing applications is August 23. Announcement of awards totaling approximately $10 million is expected in mid-October 1994.

○ Other Grants

Grants to support development of School-to-Work Opportunities system in the U.S. Virgin Islands and the Territories, and for Native American youth, will also be available as part of the grant program later this year.

For further information, contact your state school-to-work liaison, the Education or Labor regional office that serves your state, or the national School-to-Work Opportunities Information Center, 202/260-7278.

(revised 7/28/94)

SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION ★ U.S. DEPARTMENT OF LABOR

FACT SHEET

COMMON QUESTIONS, WITH ANSWERS

Q. Why do we need a national network of school-to-work opportunities systems?

A. To put it simply, our schools are having difficulty meeting the needs of most students or the businesses that hire them. The nature of work is changing. Advancing technology and global competition make it imperative that youth who go directly from school to work have more analytical reasoning ability and a broader skill base than was required in the past. Far too many students focus on one type of job within an industry, thereby limiting their marketability in the future.

Too many of the roughly one million teens who start high school every year begin with no concept of where all the assignments, drills, and tests lead. Most can't wait to graduate. Far too many do not. About three out of ten students will quit school well before graduation. In fact, for some groups of students, such as individuals with disabilities, the rate is even higher. Fewer than half will go on to postsecondary education and only half of those will earn a four-year degree.

The School-to-Work Opportunities Act will spur the creation of a comprehensive education and training system to prepare all students for high-wage, high-skill jobs or further education--in other words, college and careers. It is closely linked to GOALS 2000, in that it involves structural reform of school systems, and sets high academic and occupational skill standards.

Q. How do school-to-work opportunities systems differ from existing vocational educational and training programs?

A. Community by community, state by state, a national network of school-to-work opportunities systems will be built during the next decade. Federal seed capital will facilitate development of statewide systems, thereby creating a more comprehensive mechanism by which students transition from the classroom to the workplace or to another educational environment. Creative transition programs with which many people are already familiar (such as tech-prep, youth apprenticeship, cooperative education, and career academies) will be the primary foundations on which school-to-work systems will be built.

Many of these programs can be enhanced to become school-to-work systems by adding additional key characteristics of the school-to-work experience. However, meeting the challenge of building an effective and comprehensive system of transitioning from school to work will require significant changes in the relationship between the classroom and the workplace, applied and academic learning, and high school and postsecondary education.

Q. What are the essential components of a school-to-work system?

A. Every school-to-work system must have three essential elements:

- First, **the school-to-work system should incorporate work-based learning,** including work experience, workplace mentoring, broad instruction in industry-specific skills, and a sequential program of job training experiences with skills to be mastered at higher levels.

  There has been a great deal of research in cognitive science affirming the long-held notion that students often learn best by doing. We know that expanding the links between the classroom and the workplace setting helps make education more relevant and helps motivate students to learn.

- Second, **school-to-work systems should include school-based learning.** This program of study should meet, where applicable, GOALS 2000's challenging academic standards in core subjects. Students should have regularly scheduled evaluations to identify strengths and weaknesses, get help when they need it, receive counseling to identify their interests and explore careers, and choose a career major by the beginning of the eleventh grade.

- Finally, **systems will be required to provide connecting activities** that are essential to matching students with employers, and bringing school and work together. Technical assistance and services will be provided to employers to design their structured work program for students. After completing the program, students will receive help in finding an appropriate job, continuing their education, or entering an additional training program.

Q. What is the value of the skills certificate and diploma that students receive after completing a STWO experience?

A. GOALS 2000 establishes a framework to help all students achieve at world-class academic and occupational standards. All students participating in school-to-work systems, as mandated in Section 102 of the STWO Act, would be expected to meet state academic content standards and, when applicable, the academic standards set in GOALS 2000. Thus students would emerge from a STWO system with a diploma that means something.

GOALS 2000 also puts into place a vehicle for developing occupational standards through the creation of a National Skill Standards Board. This Board will identify broad occupational clusters and create a system of standards, assessment and certification for the skills needed in each area.

Work-based and school-based training done in STWO programs will culminate in award of a skill certificate, benchmarked to national skill standards validated by the National Skill Standards Board. The skill certificate will be an industry-recognized and portable credential that indicates mastery of skills in specific occupations.

A graduate from New Hampshire, for example, would be assured that her "manufacturing technology certificate" would be honored and respected in Hawaii. Since employers would offer the best jobs to those who met the standards and attained a skill, students would be more goal-oriented, thereby motivating them to work harder in school.

Q. In choosing school-to-work, do students forfeit their option to go to college?

A. No, quite the contrary. It expands their options by facilitating entry into college via pre-established transition pathways between high school and postsecondary institutions. The postsecondary link is a critical element of any school-to-work system, because an increasing number of good jobs do require some specialized or postsecondary training.

Under school-to-work systems, a high school graduate with a diploma benchmarked to the high standards of GOALS 2000 and an occupational skills certificate could move directly to a good job. But, it is just as likely that students will continue on to more specialized training at a community college or enroll in a four-year college degree program.

Q. Who is eligible to participate in a STWO experience?

School-to-work is for all secondary and postsecondary school age youth--generally considered to be between the ages of 16 and 21. The legislation contains no eligibility requirements, but states and localities must describe in their application how they will ensure effective and meaningful opportunities for all students to participate. This does not mean every student must participate, but rather, that every segment and type of student must have access and opportunity, including those with disabilities, those from disadvantaged or diverse racial, ethnic or cultural backgrounds, those with limited English proficiency, the academically talented, and those who are not enrolled in school.

Q. What major players should be involved in STWO local partnerships?

A. The selection criteria for evaluating STWO applications include the involvement of employers, locally elected officials, secondary and post-secondary institutions, business associations, employees, labor organizations, teachers, students, parents, community based organizations, rehabilitation agencies, registered apprenticeship agencies, and local vocational education agencies.

Partnerships are critical to the success of the enterprise. Employers will help schools develop courses that prepare students for good jobs in the local area and will provide the work experience that reinforces what is learned in the classroom. Ultimately, they will hire qualified graduates of STWO programs.

Schools will bring educators together with business, unions, parents, and others to plan and implement a STWO system. They will have to learn about and experiment with new curricula that are compatible with STWO systems as well as help students become aware of career options possible through STWO. Labor organizations will assist in planning, offer high-quality training and meaningful work experience, and provide information on different types of jobs in the community. Community-based organizations will help design programs that reach all youth as well as serving as a broker between local employers, schools, and parents.

Q. What is the current status of the School-to-Work Opportunities Act and what outcomes are expected by the year 2000?

A. The School-to-Work Opportunities Act was signed into law by President Clinton on May 4, 1994.

In early 1994, using Congressional appropriations of $100 million under the Carl Perkins Act and the Job Training Partnership Act, all states received development grants in the form of awards of $200,000 to $750,000. States are using this money to develop plans to implement school-to-work systems. By mid-July, implementation grants will be awarded to approximately four to seven states that are ready to move forward with their plans. Over the next four years, all states should receive implementation grants, develop school-to-work systems, and acquire significant expertise that will enable continuation after federal funding is no longer available.

Q. How is insurance provided to students at work sites? Does workmen's compensation apply to them?

A. The answer to this question will vary depending on the state involved. For example, the state of Washington has already clarified private sector employer liability issues regarding workmen's compensation. In that state, a student participating in a school district-sponsored work-based learning experience is defined as a "volunteer" for purposes of industrial insurance. A task force will develop specific guidelines for unpaid, work-based learning experiences of student volunteers. If the student receives a wage, however, he or she is not covered by this definition.

Maine has created the Center for Youth Apprenticeship to administer the payroll for youth apprentices and pay all applicable taxes and insurance premiums, hence relieving employers of this burden. A more extensive discussion of this issue, including a description of approaches taken by other states, is contained in a May 1994 report titled *Using Youth Apprenticeship to Improve the Transition to Work*, prepared for the Council of Chief State School Officers, Telephone 202/408-5505.

Q. Will these types of opportunities be available to all youths?

A. Eventually all states and local communities will have school-to-work opportunities systems. However, because not all states and communities are prepared to undertake such a challenge immediately, implementation will occur in waves, with those beginning early leading the way for others to follow. The U.S. Departments of Education and Labor will be providing technical assistance which will, among other things, focus on ensuring that school-to-work opportunities are available and accessible to all types of students, including those with disabilities, those from disadvantaged or diverse backgrounds, the academically talented, and those with limited English proficiency.

States and communities that receive funds will have documented how they will address the needs of all youth. The national school-to-work team will help states identify, obtain, and provide the necessary services so that special populations will be able to participate fully in school-to-work opportunities systems.

For further information, contact your state school-to-work liaison, the Education or Labor regional office that serves your state, or call the national School-to-Work Opportunities Information Center, 202/260-7278.

SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION U.S. DEPARTMENT OF LABOR

AVAILABLE RESOURCES

- Brochure: *School-to-Work Opportunities, An Owners Guide*
- Fact Sheet: Grants to States and Local Communities
- Fact Sheet: Creating a School-to-Work Opportunities System
- Fact Sheet: School-to-Work Opportunities and GOALS 2000
- Fact Sheet: Commonly Asked Questions, With Answers
- Fact Sheet Series:
  Tech Prep and School-to-Work Opportunities
  Career Academies and STWO
  Cooperative Education and STWO
  Youth Apprenticeship and STWO
- Fact Sheet: School-to-Work and Adult Education
- List of State School-to-Work Opportunities Contacts
- List of U.S. Department of Education and U.S. Department of Labor Field Office Contacts
- Bibliography of Reports and Studies Relevant to School-to-Work

ELECTRONIC ACCESS

Use of electronic media is encouraged to access the materials listed above in the most expedited fashion. The two options for doing do are:

- Automated fax machine. You must have a fax machine and a touch-tone telephone in order to exercise this option. For menu and instructions call:

  Automated Fax Numbers: 202/260-4152 or 202/260-4132

- Internet

HOW TO ACCESS SCHOOL-TO-WORK OPPORTUNITIES INFORMATION ELECTRONICALLY

The Department's online library is maintained by the Office of Educational Research and Improvement on its Institutional Communications Network (INet).

To access the library, you must have certain software -- either a Gopher client software or World Wide Web client software (such as NCSA Mosaic or Lynx). Or you must be able to "telnet" to a public access client elsewhere.

If you are using a Gopher client, point it to:

gopher.ed.gov

or select "North America->USA->General->U.S. Department of Education" from "All/Other Gophers in the World."

If you are using World Wide Web (WWW), point your WWW client to our uniform resource locator (URL):

http://www.ed.gov/

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- announcements of new publications and data sets;
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- directories of effective programs;
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- research findings and syntheses;
- full-text publications for teachers, parents, and researchers;
- pointers to all public Internet resources at R&D centers, regional laboratories, ERIC Clearinghouses, and other ED-funded institutions.

For additional information on school-to-work, call the **School-to-Work Opportunities Information Center**, 202/260-7278.

SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION U.S. DEPARTMENT OF LABOR

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Teaching Tomorrow's Work Force

By Frank Swoboda
Washington Post Staff Writer

LAKE MARY, Fla.

If the labor ministers gathering in Detroit this week for the "jobs conference" want a snapshot of what blue-collar training will look like in the 21st century, they could start with Siemens Corp.'s program for electronics technicians here.

Applicants for the 20 annual openings in the 2½-year apprentice program at Siemens's Stromberg-Carlson manufacturing plant must have successfully completed college-level high school courses in algebra and English composition. Once in the program, apprentices must maintain a 3.0 grade point average in a curriculum that includes calculus and physics.

Welcome to the new world of work, where blue-collar workers of the future will need the math skills of an engineer and the communications skills of a salesman if they hope to make it in the U.S. factory of the future.

"We are seeing the emergence of a technicians' class," says Labor Secretary Robert B. Reich. He sees his task as nothing less than overseeing one of the biggest workplace revolutions since Henry Ford introduced the assembly line to American manufacturing shortly after the turn of the century. Reich calls it the "third industrial revolution."

President Clinton will open the two-day gathering in Detroit tomorrow with officials of the seven most industrialized nations, all of which are facing serious work force challenges. The fear that unites the group is that increased global economic competition will undermine the standards of living of millions of workers.

The problem can be seen in industrial towns across the United States and Europe: The days of semiskilled factory workers performing single assembly line tasks at high rates of pay, and good benefits, are over. In a world of increasing competition, low-skilled jobs are shifting to low-wage countries. Unless they gain new skills, U.S. manufacturing workers could lose their grip on a middle-class lifestyle.

The answer to this blue-collar problem, Reich argues, is to change the nation's public education system so that workers learn the skills they need to compete.

The House and Senate already have approved separate pieces of legislation to dramatically reshape the high school curriculum of the nation's public schools and set up a program of national skills standards certification, which many in government predict eventually will replace the high school diploma as the education currency of the workplace for the overwhelming majority of high school graduates who never go on to earn a college degree.

The final piece of the Clinton legislative package was introduced last week. Known as the Reemployment Act, it will consolidate the services offered by state employment services and create a single program for helping dislocated workers who have lost their jobs as a result of corporate downsizing or government policy shifts. These workers could receive as much as two years' training and income support.

What will determine the incomes of workers who don't graduate from college will be their workplace skills, attained through apprenticeship programs like the one at Siemens or at other programs such as the "academies" in the Oakland, Calif., public school system for those who do not carry their education beyond high school. [See accompanying article.]

The Siemens program has become a laboratory for the federal government, one of 10 programs picked by the Labor Department as part of a demonstration project for designing school-to-work transition curricula.

The president summed up the problem last fall during a visit to a youth apprenticeship program in Delaware. "We are living in a world where what you earn is a function of what you can learn; where the average 18-year-old will change jobs seven times in a lifetime; where there can no longer be a division between what is practical and what is academic," Clinton said.

Clinton noted that the United States is the only advanced country that does not guarantee some form of apprenticeship training program to high school graduates who aren't going on to college.

The job-training dilemma facing Clinton was described two years ago by a special Labor Department commission studying the skills needed in today's workplace, which concluded: "A strong back, willingness to work and a high school diploma were once all that was needed to make a start in America. They are no longer."

States from California to Maine already have begun experimenting with new forms of vocational education in an effort to provide usable workplace skills for their high school graduates. Some states have added extra years of free education and training to the public school curriculum.

The Clinton administration is modeling some of its new labor policies on those of Western European nations, which for decades have seen job training as part of a broad "social safety net" of benefits. Indeed, the Siemens program that won the Clinton administration's praise is described by the company as an "Americanized modification" of the German system of apprenticeship.

The Stromberg-Carlson plant here shows why blue-collar workers will need better skills to compete. Company officials predict that at least 60 percent of the future jobs in the factory will require skills training. Financially, the numbers at Stromberg-Carlson speak for themselves. An unskilled assembler at the plant can expect to earn about $20,000 a year after 30 years on the job. Graduates from the apprenticeship program start out at $27,000.

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A similar pattern is evident across the country as the U.S. economy shifts gears. Since 1947, manufacturing employment in the United States has steadily dropped from a peak of 35.4 percent of the work force to 17 percent in 1991, the latest figures available. But even as employment has declined, manufacturing productivity has continued to increase, primarily through automation, meaning a complete change in the mix of the work force.

Much of the reduction in manufacturing employment has been offset by job creation in the service sector. But many of these jobs are unskilled and relatively low-paying, and they often do not include benefits such as health insurance and pensions. And while the service sector is creating its share of good-paying jobs, they too are being reserved for the skilled.

Recognizing both the financial and cultural constraints of their reform efforts, the administration has proposed legislation that would be largely voluntary and would provide only initial seed money to encourage states—which will continue to bear the brunt of responsibility for public education—to begin experimenting with their high school curricula.

The goal of this School-to-Work Opportunities Act will be to create a system of training programs in the public schools. To be eligible for the federal money, schools must provide job training or paid work experience for students in the program; they must also offer instruction in a career major that must be chosen by the 11th grade and, if possible, at least one year of post-secondary education.

Separate legislation calls for setting up voluntary skills standards and a certification test tailored to the needs of various industry groups.

The certificate would be designed to tie learning to earning ability—in the minds of both the student and the employer. Employers today seldom ask the grades of a high school graduate being considered for a job because standards vary so widely from school district to school district. Under this system, there's little incentive to excel in the classroom for those who aren't going on to college. Since employers won't care about grades, why should the students?

The voluntary standards would change that equation. The goal would be to determine what a high school graduate must know to both qualify for existing jobs in an industry, and to have the necessary aptitude for re-training as industry needs changed. Members of the national board charged with setting the standards would be drawn from business, labor and academia.

"There can be no wavering on standards," said John P. Tobin, director of vocational training for Siemens. He said Siemens makes its apprenticeship applicants run through a rigorous academic testing process because "a high school degree really doesn't mean very much. We have to have an infrastructure that retrains everyone in the school system. We can't just train for a service economy in America."

One Labor Department official predicted the skills certificate eventually would replace the high school diploma for millions of young people entering the work force.

But the notion of steering a high school student into a vocational education program tends to rub against the cultural grain of a nation where the American dream includes the opportunity of a college education for everyone, regardless of background.

That is precisely why Siemens has tied its apprenticeship training to the local community college, to help overcome what Tobin calls "the taint of vocational training." Pre-apprenticeship programs starting in 10th grade at two nearby high schools have not been fully subscribed, a fact Siemens officials attribute to the bias against vocational training.

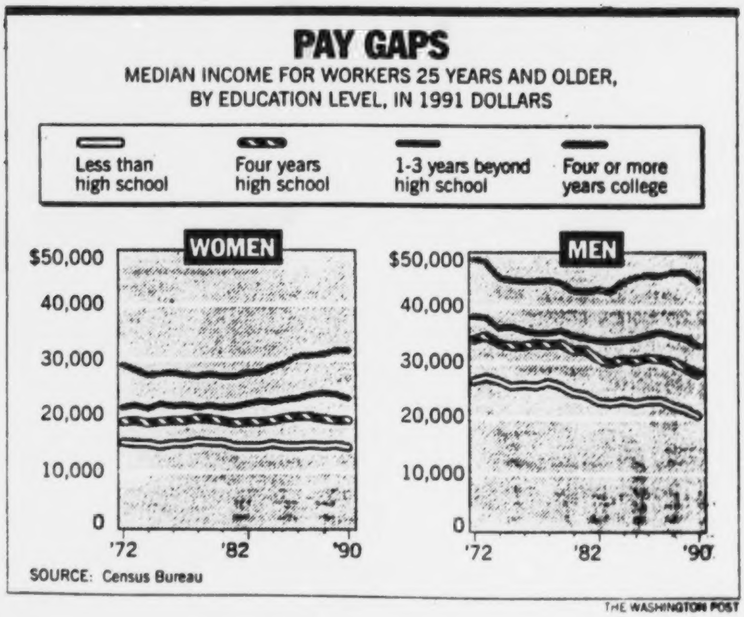
In the Stromberg-Carlson program, students spend 20 hours a week in the classroom and 20 hours in a factory training shop during the first year. In the second year, they spend 20 hours a week working in various departments on the factory floor and 20 hours in either classroom or other theoretical training. The last six months of the program are spent primarily on the factory floor, with some review sessions.

During the training period, apprentices receive an initial stipend of $450 a month, which is increased each school term up to $800. The company pays all tuition, books and lab fees at the community college. There is no guarantee that someone who successfully completes the program will be hired by the company, although most are hired.

The training inside the Siemens complex at Lake Mary is as rigorous as the academic work, and it has provided some hard lessons for both students and instructors. When Siemens started the program it had an American instructor teaching the apprentices. He didn't last very long.

"Frequently, instructors come out of an industry that has passed them by," Tobin said. The American instructor, he said, was satisfied with work that was "good enough" but less than perfect. "If it's not perfect, it's not allowed out of the shop. In American schools, they let anything out," he said.

In the world of modern manufacturing, Tobin said, simply making the effort is no longer good enough. "We will recognize effort, but award achievement," he said.


PAY GAPS

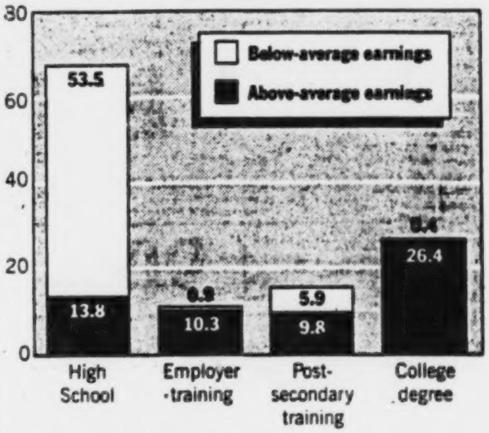
MEDIAN INCOME FOR WORKERS 25 YEARS AND OLDER, BY EDUCATION LEVEL, IN 1991 DOLLARS

SOURCE: Census Bureau

THE WASHINGTON POST

SCHOOL REWARDS

NUMBER OF WORKERS WITH ABOVE- AND BELOW-AVERAGE INCOME, BY EDUCATION LEVEL, IN MILLIONS



SOURCE: Bureau of Labor Statistics

THE WASHINGTON POST

To correct the problem, Siemens turned to its headquarters in Germany and recruited "meister" Werner Franz from the home office. Today, nothing leaves the shop that isn't perfect.

Industry-Based Education:
A New Approach for School-to-Work Transition

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School-to-Work
What Does Research Say?

One of six papers commissioned by the U.S. Department of Education, Office of Educational Research and Improvement, on School-to-Work

Introduction

The United States does a good job, probably better than any other country in the world, preparing many students for 4-year colleges and universities. But for the three-fourths of high school students who may never finish or even attempt to earn a bachelor's degree, the pathways to good-paying, sustained employment are meandering, poorly marked, and replete with dead ends and wrong turns.[1] The School-to-Work Opportunities Act challenges states to change this state of affairs. It encourages them to fashion a new system of school-to-work transition from the hodgepodge of programs and agencies spawned by the federal and state governments over the past 70 years.

Traditionally in the United States, vocational education has shouldered responsibility for the workforce preparation of high school students, especially those not pursuing a college education. Until about 1970, vocational programs mainly provided training for entry-level positions in agriculture, business, trade, and industry. During the past 20 years, vocational education has grown substantially in 2-year community colleges and private proprietary schools, leading to a growing emphasis on health and technical occupations. However, the focus has remained pre-baccalaureate. Moreover, until the recent push for developing tech-prep programs spanning the last two years of high school and the first two years of community college, connections between secondary and postsecondary vocational education programs were loose to nonexistent. Consequently, many students enrolled in postsecondary institutions failed to pursue a coherent program of study, and relatively few of them attained 2-year degrees or certificates.[*]

Americans are extraordinarily ambivalent about vocational education. On the one hand, vocational education has enjoyed strong, long-standing federal support. Since the passage of the Smith-Hughes Act in 1917, policymakers have expected great things of vocational education—from assimilating immigrant youth to reducing dropout rates to creating new employment opportunities for displaced workers, women re-entering the workforce, and other students with a variety of special needs. On the other hand, many parents view vocational education with suspicion; they see it as a high school dumping ground that cuts off college opportunities and relegates their children to a future of low-paying, dead-end jobs. Many educators also view vocational education as second rate, and the agendas of national and state school-reform efforts during the 1980s generally ignored vocational education. Indeed, the widespread adoption of increased academic requirements limited students' opportunities to participate in vocational education. Some observers viewed this decline with concern and argued that vocational education could contribute much to new conceptions of secondary and postsecondary education. Most champions of education reform, however, had little interest in vocational education, and some even welcomed its decline and predicted it would soon disappear from the high school curriculum.

The evolution of the School-to-Work Opportunities Act reflects this ambivalence. An early draft of the legislation sought to replace the existing vocational education enterprise and substitute a new, but ill-defined, system of youth apprenticeship. As the legislation evolved, its focus broadened to include cooperative education and tech-prep programs. It also adopted one of the primary goals of the 1990 Carl Perkins Vocational and Applied Technology Education Act—the integration of vocational and academic curricula. Nevertheless, many supporters of school-to-work programs continue to harbor a basic distrust of vocational education, doubting it has much to contribute to a 21st century system of workforce preparation.

Despite this ambivalence, fashioning a successful, wide-reaching system of school-to-work transition depends on finding a strategy for building on the existing vocational education enterprise.

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[*] Of 1980 high school seniors enrolled in public 2-year institutions, 16.6 percent had earned an associate's degree by 1984, and 3.5 percent had earned a certificate. See E. Gareth Hoachlander, Phillip Kaufman, Karen Levesque, and James Houser, Vocational Education in the United States: 1969–1990 (Washington, DC: National Center for Education Statistics, table 5, 111, April 1992.

One reason is simply resources. The nation cannot afford to build a parallel system that will serve the majority of its youth. But the reasons go well beyond fiscal capacity. Appropriately conceived, vocational education can provide the building blocks for new approaches to workforce preparation that appeal to all students and significantly enhance their opportunities for future education and work. A key ingredient, as will be argued in this paper, is transforming vocational education from its traditional emphasis on occupational preparation to a focus on large industries that can provide a much broader context for imparting work-related knowledge and skills.

This paper begins by examining the principles underlying the new school-to-work initiative and the major challenges it faces. Then it briefly reviews the current status of vocational education in the United States, identifying its major strengths and weaknesses. Based on this assessment, the paper outlines the structure of a new school-to-work curriculum.* This new structure downplays preparation for specific occupations—the traditional objective of vocational education—and instead emphasizes providing students with an understanding of major industries, such as communications, finance, hospitality, and transportation. Such a curriculum would not abandon specific skill training, academic or occupational, but instead would teach these skills in a much broader context that also attends to the history, technology, organization, and systems of the work world.

School-to-Work Transition: Principles and Challenges

The School-to-Work Opportunities Act contains four principles that are central to fashioning an improved system of school-to-work transition. First, the legislation urges creation of a sustained, structured program of study that integrates academic and vocational instruction. The precise duration and timing of this program is intentionally vague so it can be adapted to a variety of institutional arrangements as well as to differences among students in aspirations, abilities, and achievement. A concentrated program of school-to-work preparation would probably last at least two years and end no sooner than the last year of high school. For many students, a longer program of 4 to 6 years would span secondary and postsecondary education. It could begin as early as the 9th or 10th grade, continue through the first 2 years of postsecondary education (probably at a community college), and even be linked to a 4-year baccalaureate degree and further graduate training.

Whatever its duration and beginning and ending points, the key feature of this system is unmistakable: It is a structured program with clearly marked paths of education and work. There is no one right way to go. Branches, detours, course reversals, and other changes are permissible, perhaps even encouraged; however, the routes from one point to another are well marked, and the knowledge and skills needed to make the journey are well described. Equally important, the pathways combine academic and vocational instruction, using work as the context for applying knowledge and skills. Academic knowledge is not taught in the abstract, and vocational skills are not taught in the absence of more general theory. Rather, the two are taught in tandem to maximize understanding, retention, and transferability to a variety of problems and situations.

The second principle underlying school-to-work is the integration of classroom-based instruction with work-based learning. In some respects, school-to-work is a misnomer; school *and* work, mutually and simultaneously reinforcing one another, are the dual training grounds for workforce preparation. Clearly, what is envisioned is not simply work experience (as valuable as that may be), but rather much more careful coordination between the timing and substance of experience in the workplace and in the classroom. This feature of the school-to-work initiative helps explain its early preoccupation with youth apprenticeship, which stresses careful mixing of classroom instruction with opportunities for hands-on experience on the job. Admittedly, this is a learning strategy that has not been widely used in the United States, but there are other existing examples in addition to youth apprenticeship or its adult apprenticeship counterpart that have been in practice nationwide. Cooperative education, for example, which annually enrolls about 500,000 students, has long stressed the integration of school and work. However, co-op programs tend to be shorter, about 1 year, in contrast to the model youth apprenticeship programs that span up to 4 years. Additionally, the programs of several professional schools—most notably, medicine, dentistry, and architecture—build curriculum around integrated classroom and work experience, with the latter consisting of both real and simulated work situations for students. For that matter, the laboratory experience that is an essential part of most top-flight science curricula employs some of the same learning theory, although many science labs fail miserably to make clear connections to real-world applications.

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*The primary focus of this paper is on a curriculum for secondary schools. Although the framework is certainly relevant for postsecondary institutions as well, postsecondary applications will need more attention than can be devoted here.

The third principle of the school-to-work opportunities initiative is clear articulation with the full range of postsecondary opportunities. At a minimum, participation in work-based preparation in high school should not foreclose any opportunities to pursue postsecondary education. Ideally, it should enhance postsecondary opportunities and provide some well-defined alternatives to the traditional academic curriculum that has provided the only avenue to the baccalaureate degree and beyond. This principle does not mean all students must or should pursue postsecondary education. It simply means one's curriculum choices in high school should not severely constrain one's opportunities later on.

The fourth principle of the school-to-work legislation is it should expand educational and work opportunities for *all* students. The School-to-Work Opportunities Act began as an initiative for the noncollege bound, especially the 40 to 50 percent of high school students who never enter any form of postsecondary education or formal training. Unquestionably, this group fares least well in the labor market. However, to create a program defined primarily for those who do not go to college is to doom it from the outset. Part of the problem, of course, is the stigma such a limited program would almost certainly acquire. More practically, almost all high school students aspire to college. While more than half will not realize these aspirations, they do not decide prospectively to lower their expectations and opt for something else. Therefore, a program for the noncollege bound is simply not one that very many high school students would choose.[*] Ironically, the most effective strategy for better serving noncollege-bound students lies in not developing a program specifically aimed at this group.

There are some formidable challenges to developing and implementing a system of school-to-work transition that adheres to these four principles. First, and probably foremost, there is currently no well-developed curriculum framework that would permit its use on a large scale. What are the programs of study that youth would pursue? What are the respective roles and responsibilities of educational institutions and employers? How will the knowledge and skill content of these programs be determined and kept up-to-date? What is the appropriate mix of classroom instruction and work experience, and how will the necessary coordination be accomplished? How will responsibilities between secondary and postsecondary institutions be divided and effective articulation accomplished? Little attention has been paid to answering these questions. And these issues are not mere details. Rather, they are central to defining and implementing a large-scale system of reform.

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[*] One could, of course, try to force students to choose early on between an academic curriculum preparing them for 4-year college and university and a vocational-technical curriculum preparing them for more immediate entry into the work force. This practice is essentially the model used in many European countries that rely on examinations to sort students early in their education careers. American education reformers have recently proposed variations of this model. See, for example, Commission on Skills of the American Workforce, ***America's Choice: High Skills or Low Wages*** (Rochester, NY: National Center on Education and the Economy, 1990). Oregon is in the process of adopting and implementing changes to its secondary education system that would transform it into a two-track system. But these proposals in America come at a time when the European practices are being increasingly challenged by parents and students wanting greater access to postsecondary education.

Structurally, promoters of a new system of school-to-work transition have thus far settled on only one unifying theme: collaboration between schools and employers. As important as collaboration is to effective programs, it currently lacks much substance. Precisely what are schools and employers supposed to do together? If a young woman interested in aeronautical engineering is working as a mechanic's helper in the maintenance facility of a major airline, is it the employer's responsibility to teach her the equations used to calculate the lift and drag coefficient of different airfoils? Or does the employer merely provide opportunities to apply these calculations? For that matter, does she really need to know these calculations at all, and if she does, how important are they relative to other kinds of knowledge? Who decides? Even though today's airframe and power mechanic probably never uses these equations, would long-term design and engineering of aircraft be better served if mechanics possessed greater theoretical understanding that improved communication between them and engineers? How would better communication be assured if mechanics possessed such knowledge? Carrying out new school-to-work programs requires getting beyond generalities and down to the specifics of what students should know.

The problem is not just specificity, but what degree and kind of specificity. Existing secondary and postsecondary vocational education programs, as well as apprenticeship and various employment training programs, are full of detailed knowledge and skill requirements, often with the full blessing and participation of employers. More often than not, however, the development of these requirements has been willy-nilly, with no criteria to guide specification and little sense of the long-term educational goals that need attention.

A second challenge facing the school-to-work initiative is impact. Its promoters talk disparagingly about mere programs and instead call for creating new systems and "getting to scale," by which they seem to mean doing something really large in scope. Although the School-to-Work Opportunities Act is a federal initiative, there is very little federal money to implement it—probably less than $300 million annually. Consequently, proponents of the initiative promote it as providing seed money to state and local governments that will be primarily responsible for finding the resources needed to achieve the aims of the legislation. This venture capital approach to investing federal dollars is probably the right strategy given very limited federal resources. However, it is not clear that these proponents understand the magnitude of the task or that they have a well-developed strategy for leveraging federal funds.

For example, the cost of a comprehensive, 4-year program of academic and vocational study that would serve half of the nation's youth between the ages of 16 and 19 is probably at least $35 to $40 billion annually.* Fortunately, this may not represent new money because the nation already spends roughly that amount on this age group in public high schools and community colleges. Thus, the challenge is redirecting these existing resources rather than finding new dollars. Nevertheless, this is a daunting task, akin to turning the proverbial battleship proceeding under full speed. Now, the primary strategy for accomplishing this maneuver is federal support for multi-agency planning at the state level, with some additional but rather limited funding for supporting implementation of the most promising plans. Why this strategy is likely to be effective is not immediately obvious. Moreover, even if the choice of means is correct, the process would benefit from more substantive direction than the federal level has yet provided.

The third challenge is developing a functioning school-to-work program that has wide appeal. School-to-work programs cannot simply claim to be for all students. They must capture the interest of a wide range of students and avoid acquiring the stigma of a program that mainly serves low-achieving students.

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* In 1992–93, there were approximately 13.2 million people in the United States, ages 16–19. Average expenditures per student in the K–12 system were about $5,300 per student. Assuming a comparable amount were also spent at the postsecondary level, the annual cost would be $35 billion (6.6 million students x $5,300). This, of course, is a rough estimate. Actual expenditures could be more, requiring new resources. In any event, available federal funds are but a small fraction of the total expenditures needed for a large-scale effort.

To better appreciate how difficult this may be, consider that 98 percent of all high school students now take at least one course in the vocational education curriculum before graduating. Moreover, almost 90 percent take at least one occupationally specific course, as do more than three-quarters of the most academically inclined who earn mostly As during their high school careers.[1] Unquestionably, lower-achieving students and students from lower socioeconomic backgrounds take considerably more vocational courses in high school, but virtually all high school students take some courses. Nevertheless, vocational education continually struggles with the widespread perception that the curriculum is not only useless for college preparation but also counterproductive. Vocational education, as the popular wisdom goes, "is not for my children."

Clearly, mere participation around the edges of school-to-work by students preparing for 4-year college will not make this a program for all students. If school-to-work initiatives are to avoid second class status in secondary and postsecondary institutions, they must fully engage a significant number of students who will pursue 4-year college programs. How best to accomplish this aim has not been carefully considered.

There is a fourth challenge: The school-to-work initiative must not just appeal to a wide range of students, it must also engage a large number of teachers, academic and vocational, who are already part of the secondary and postsecondary education enterprise. If the school-to-work initiative is to reach significant numbers of students and use dollars already allocated to public education in the near future, it must enlist the energy, knowledge, and creativity of existing faculty. Although training new faculty is important, most of those who will carry out a large-scale school-to-work program are already in the teaching force. Proclamation alone will not turn their attention to the aims and substance of school-to-work. Some well-crafted and ongoing staff development is a crucial, although so far missing, ingredient in a successful school-to-work initiative.

In summary, a successful, large-scale school-to-work initiative depends on fashioning a new curriculum that appeals to a wide range of students and teachers and contains a clear role for employers. Implementing this curriculum will require redirecting resources already devoted to secondary and postsecondary education and must rely primarily on faculty who are currently teaching. Therefore, a new curriculum needs to build upon the strengths already inherent in the present system, while simultaneously avoiding its most serious weaknesses. Consequently, before discussing the development of a curriculum framework, a brief review of the nation's primary approach to workforce preparation, vocational education, is in order.

Vocational Education: A Brief Assessment

Vocational education has existed as a distinct course of study in American education since the late 19th century when private trade schools began providing training in agriculture and business. Near the turn of the century, as public schools grew in number, vocational education began to find its way into the curriculum, and the Smith-Hughes Act of 1917 provided federal support to encourage the further development of high school programs in agriculture, business, marketing, home economics, trade, and industry. Federal vocational education policy remained virtually the same until 1963, when the Vocational Education Act was passed. This legislation significantly increased federal support for vocational education. Moreover, it encouraged the development of area vocational schools and recommended improving the quality of vocational programs for disadvantaged students. Amendments in 1968 and 1976 continued these policies and also began to provide more federal support for vocational education at the postsecondary level.

The Carl D. Perkins Vocational Education Act of 1984 marked the beginning of a major effort to focus federal policy more effectively. This legislation advanced two primary federal goals: improved access and services for students with special needs, and program improvement. The law no longer allowed states to use federal funds simply to maintain existing programs, and it increased reliance on set-asides that allocated specific proportions of federal funds for students with special needs.

In 1990, the Carl D. Perkins Vocational and Applied Technology Education Act further focused and clarified federal policy. It promoted four major objectives: targeting all federal funds on secondary and postsecondary recipients with high concentrations of economically disadvantaged and disabled students; promoting the integration of academic and vocational education; encouraging the development of tech-prep programs that linked secondary and postsecondary offerings; and requiring the development of accountability systems of performance measures and standards.

Four features distinguish vocational education over the past century. First, the curriculum has operated in isolation from the rest of the secondary and postsecondary offerings. Few, if any, links have existed between academic and vocational courses nor has there been much communication between vocational and academic faculty. Academic teachers have paid little attention to the vocational interests of students, and vocational teachers have usually limited their instruction to teaching job-specific skills.

Second, vocational education has focused primarily on occupationally specific preparation for work. With the exception of vocational agriculture programs, which assumed a broader role in preparing students for living in rural communities, vocational education has tended to organize programs around narrowly bounded occupations. Thus, a student active in vocational education would not concentrate in health; rather this student would pursue a program in nursing, or more specifically, licensed vocational nursing or nursing assisting. The vocational curriculum has emphasized skills suited to a particular occupation, with little attention to more generalized knowledge, requirements in related fields, or the larger context of the industry in which students may be working. Table 1 illustrates the kind of occupational specificity that is typical of many secondary and postsecondary vocational offerings.

Table 1.—Typical vocational education program offerings (selected programs)

Accounting
Appliance repair
Audio-visual communications
Auto diesel mechanics
Automotive specialist
Building construction
Business information processing
Carpentry
Civil technology
Commercial art
Communication electronics
Computer programming
Construction masonry
Diesel engine mechanics
Drafting
Electrical occupations
Electronics
Food production
General merchandising
General secretarial
Health assisting
Heating and air conditioning
Home health aide
Horticulture
Machine trades
Medical assisting
Microcomputer repair
Nursing Assisting
Plumbing
Robotics technology
Sheet metal
Welding

SOURCE: Student Assessments, National Occupational Competency Testing Institute.

Third, the occupational focus of vocational education has, by the definition of federal law, been limited to preparation for jobs that require less than a baccalaureate degree. For the first half of the century, very little vocational education existed at the postsecondary level at all. Postsecondary programs grew significantly in less-than-4-year institutions from 1960 to 1980, and these programs typically ended with the award of a 1-year certificate or a 2-year associate's degree. This limitation has contributed to the widespread perception that vocational education is inconsistent with a student preparing for or pursuing a college education, by which most people mean a baccalaureate degree.

Fourth, vocational education has been almost the exclusive responsibility of educators, with business and labor assuming a less formal role. Apprenticeship and cooperative vocational education programs are exceptions to this generalization, enrolling relatively small numbers of students.[*] Nevertheless, vocational education in the United States has been limited mainly to school-based instruction. Many vocational programs do have advisory committees that include strong business and labor representation, but these committees have little or no formal authority or responsibility. Nor are there any guaranteed transitions from school to work as a result of successfully completing a vocational education program at the secondary or the postsecondary level.

The combination of isolation from the academic curriculum and preparation limited to specific jobs requiring less than a baccalaureate degree has, probably more than any other factor, contributed to the long-standing and widespread perception that the vocational curriculum provides a second-rate education. Vocational educators have also complained that the federal government's increasing concentration of federal vocational funds on special populations fuels this perception by implying that vocational education is intended for disadvantaged students.

Despite its image problem, vocational education has been widely used by both secondary and postsecondary students. Virtually all high school students take at least one course in the vocational curriculum during their high school careers. Moreover, the vocational curriculum accounts, on the average, for about 20 percent of the Carnegie units[**] high school students accumulate in 4 years of school. At the postsecondary level, vocational education is especially popular among community college students, and private proprietary schools also enroll many students.

At the secondary level, however, participation in vocational education has been declining steadily since about 1982. Between 1982 and 1987, the average number of Carnegie units taken in the high school vocational curriculum declined from 4.6 to 4.2.[2] This average declined further to 3.8 by 1992.[3] These national statistics are consistent with widespread anecdotal complaints by vocational educators that vocational education has been slowly disappearing from the high school curriculum.

Even at the postsecondary level, where many acknowledge that the specific occupational preparation is more appropriate and rigorous, vocational education suffers from problems of standing. Transfer to 4-year colleges is still the touted mission of community colleges, despite the fact that probably fewer than 15 percent of the students in these institutions ever make that passage. What transfers do occur are accomplished mainly by community college students pursuing academic associate degrees. Few of those attaining vocational associate degrees go on to 4-year institutions.

Like most stereotypes, the public perception that vocational education is below standard is part true and part false. Just as there are poor academic offerings in some of the nation's high schools, so too are there vocational programs long out-of-date, poorly equipped, and incompetently taught. For example, there are nursing-assistant programs where the curriculum consists mainly of teaching girls

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[*] Of the 13 million young people ages 16–19 in 1992, only about 2,000 were participating in youth apprenticeship programs. Enrollment in secondary and postsecondary cooperative programs has been estimated at about 500,000.

[**] A Carnegie unit represents one period (of about 55 minutes) per day, 5 days per week, for 2 two semesters. Thus, a high school student taking courses in a six-period day would accumulate six Carnegie unites for the academic year.

(mostly minority) how to perform sponge baths and change bedpans.* There are, however, some outstanding vocational programs. For example, in a few high schools around the country, aviation programs offer students broad-based preparation in a variety of fields from airframe and power mechanics to aeronautical engineering, and most program participants go on to 4-year colleges and universities.**

Regardless of this wide range of quality in practice, in principle vocational education embraces tenets many educators and researchers increasingly believe are central to promoting better learning. Through work, vocational education provides a context for applying, and therefore better understanding, academic knowledge and skills. Vocational education has always been more hands-on than most academic curricula. It moves from the concrete to the abstract, from the specific to the general. It can engage the imagination of many students and motivate them in ways the conventional academic curriculum cannot or at least so far has not.

Additionally, vocational faculty are a large, and mostly unappreciated, source of work-related knowledge and skill in secondary and postsecondary institutions. In America's high schools, vocational teachers represent about one-fifth of the total teaching force.[4] In community colleges, their numbers are closer to one-half of the faculty. A major problem confronting the development of an effective school-to-work curriculum is most academic faculty, as well as most administrators and support personnel (especially counselors), have limited knowledge of and experience in any industry other than education. Although the knowledge and experience of vocational faculty may not always be as current and broadly developed as one might like, ignoring this resource, especially without any clear alternative, would be a serious miscalculation.

Finally, a growing body of research shows participation in vocational education produces positive learning and labor-market outcomes if students complete a comprehensive program of academic and vocational study and secure work in a field related to their studies. Unfortunately, public education policy in the United States has neglected promoting program completion and has instead concentrated on access and process. The consequence of this neglect in vocational education is evident: Most secondary and postsecondary participants in vocational education do not complete programs, and typically fewer than half of those who complete their programs find related work.

In summary, vocational education is, in some important respects, out-of-date. As with much of the educational enterprise in this country, vocational education still employs a curriculum framework and pedagogy rooted in the first quarter of the 20th century. While age alone should not be grounds for change, there is clear evidence the isolation of vocational education from academics, its narrow occupational focus, and its limitation to pre-baccalaureate instruction detract from its potentially valuable contribution to workforce preparation. What, then, might an alternative approach be?

Toward a New School-to-Work Curriculum: Industry-Based Education

Consider two very different approaches high schools may use to prepare students for working in the construction world. The first school, adopting the traditional approach in this country, limits instruction to preparation for building trades occupations—carpentry, masonry, plumbing, electricity, and drywall. Students who are interested in these occupations (mostly boys) are separated from everyone else, and during their junior and senior years in high school, they spend two or 3 hours every day in a shop devoted to their particular trade. Because these occupations do not require a college education, it is assumed these students are not college-bound, although they may pursue some additional training in their trade at a local community college, or they may enter an apprenticeship program. Since these students are not likely to go to college, they are permitted (perhaps even encouraged) to take courses called General Math, General Science, and General English. Taking these courses virtually guarantees they will not go to college because the courses are not recognized as acceptable for admission at most 4-year colleges and universities. In effect, college is no longer an option for these students. Moreover, should any of them decide their chosen construction trade is not what they want to do, they are not likely to know much about any alternatives, let alone have the knowledge and skills to pursue them.

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* These are necessary skills that must be taught. They can, in fact, have a place in a high school curriculum. The issue is emphasis, related content, and context. A program limited to imparting mainly these skills severely constrains students' opportunities and grossly misjudges their abilities to learn.

** Aviation High School in New York City is perhaps the oldest and best known of these schools, but there are others. In September 1993, to kick off the introduction of the School-to-Work Opportunities Act, President Clinton visited a similar program in Georgetown, Delaware.

The second school adopts a different approach. It does not offer building trades programs but a 4-year Built Environment Program. The program is for any student interested in some aspect of the building industry—including the building trades, to be sure, but also architecture, engineering, interior design, planning, housing policy, or construction technology.[*] Participants may or may not go to a 4-year college, but this choice is not affected by their decision to enter the program. Rather, it largely will be determined by how their aspirations and abilities develop and how well they perform in their 4 years in high school. The program includes both boys and girls, although the building industry is still male dominated.

During their high school careers, the students in the Built Environment Program take the same core of academic courses—4 years of English, 4 years of history or social studies, 3 years of math, and 3 years of science. Students are also encouraged to take two years of foreign language. Although there is no general curriculum, students can choose courses within the core curriculum. The science requirement, for example, can be satisfied by taking chemistry, biology, physics, and principles of technology, as well as a followup course in any of these subjects if a student wants to specialize. All the core courses, however, are tailored around students' interests in the built environment. In world history, for example, they study the evolution of cities and cross-cultural approaches to housing and furnishing. Trigonometry relies heavily on problems from carpentry and engineering.

Each year, students also participate in a studio. The studio is shorter in the freshman and sophomore years, perhaps consisting of one or two sessions per week that last 2 hours. By the senior year, however, the studio may last 2 to 3 hours every day. The studios are project oriented and integrate what students learn in their core courses into actual projects. In the freshman year, for example, the studio might consist of producing a complete housing profile on a nearby urban neighborhood, developing an inventory of structures by age, size, type of construction, and demographics of residents. This might lead to a sophomore studio on housing policy and the problems of homelessness. A studio in the junior year might be devoted to planning and designing a housing project the students will build in their senior studio. This senior studio is not merely a house-building project, which is a common feature of many vocational carpentry programs. It is that and much more—a project culminating 4 years of exploring design, technology, environmental impact, public policy, finance, health, safety, and a host of other issues surrounding the role of the building industry in America.

Both the core courses and the studios are team taught by academic and vocational teachers (who might now be called industry specialists). As a rule, the same teachers would follow the students through all 4 years of high school, helping to ensure students continually build on the knowledge and skills they learned previously. Core courses, incidentally, would not necessarily meet five times each week for 50 minutes at a time. In some semesters of some years, they might only meet three times a week to free up time for the studio.

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[*] In opting for the Built Environment Program, the student is not choosing a career. Rather, he or she is simply selecting an area around which to organize a program of study in much the same way that a college student selects a major. This provides an opportunity to connect the high school curriculum to the real world, while also helping them to develop some focused, indepth knowledge. Many students selecting the program may pursue careers in the building industry, but this is not the primary objective.

In short, the alternative described here is an industry-based curriculum for preparing all kinds of students—those who plan to go to college and those who do not, boys and girls, those inclined toward either academic or more applied study, slow or fast learners—for productive, satisfying work. Its focus on industries rather than occupations provides a concrete context for students and teachers to apply knowledge and skills while also offering sufficient breadth to embrace a wide range of interests among students and faculty. Opportunities for integrating academic and vocational curricula are limited only by the imagination of teachers and students. Thus, the industry-based curriculum provides focus, which is increasingly recognized as central to good schooling, but avoids encouraging narrow, premature specialization.[5]

As atypical as this alternative scenario may sound, it is not a fantasy. Some high schools already use variations or selected features of this model, and it will sound familiar to those who have spent some time in certain magnet schools, academies, or a few full-time vocational high schools such as the Chicago High School for Agricultural Science and Technology or Ringe High School in Cambridge, Massachusetts.[6] Additionally, the model is consistent with scattered efforts to begin implementing the provisions of the 1990 Perkins Act, which encourage broadening vocational education to include giving students experience and understanding in all aspects of the industry—planning, management, technology, and labor. Nevertheless, there are few working examples. Nor is there any systematic framework for replicating these examples more widely. What might such a framework look like?

Developing a more coherent framework will require attention to at least five features: an acceptable taxonomy of industries for organizing curriculum; articulation of the content of the curriculum; an understanding of how an industry-based curriculum might be delivered in high schools of different sizes and in different locations; clear functions for academic and vocational teachers; and a well-defined role for business and labor.

A Taxonomy of Industry Programs

If industry is to replace occupation as the basic building block of a school-to-work curriculum, what constitutes an industry? There may be general agreement it makes little sense to devote 4 years of high school to becoming an auto diesel mechanic; however, if one were to replace occupational specificity, what level of industry generalization would be appropriate—automotive services, the automobile industry, or even more generally, transportation?

There is no single answer to this question, but it is possible to posit some guidelines. First, we need a manageable number of industries so the resulting curricula are neither hopelessly general nor too specific. "Business," for example, is not a very useful construct, despite the fact that in the traditional vocational education lexicon it has stood for a variety of support occupations including accounting, secretarial, and clerical. At another extreme, "industrial laundering" is clearly too narrow.[*] Probably somewhere between 10 and 20 industry classifications represents a manageable number of curriculum areas.

Dividing the world of work into 10–20 categories implies, then, that size is one of the criteria for determining the boundaries of an industry. One might suggest, for example, to qualify as a curriculum area, the specification of an industry must account for at least 3 percent of national employment or gross domestic product. Additionally, the industry classification should possess a rather high degree of economic coherence. What constitutes an industry ought to represent how an economic activity is organized to produce a recognizable set of products or services. Finally, an industry ought to rely on diverse use of both physical and human capital. It should involve a wide range of technologies and employ individuals with a variety of educational backgrounds and attainment levels.

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[*] Lest this example seem farfetched, industrial laundering is one of the industries recently selected for the development of national industry standards.

With these criteria in mind, it is instructive to examine Sweden's recent efforts to reorganize the high school curriculum around large industries. Table 2 displays the 16 national programs that are now the basis of the Swedish Upper Secondary School. The Swedish programs are clearly no longer an occupational approach to organizing curriculum although several of the categories could be defined more broadly and coherently. For example, combining child care and leisure seems a bit odd, and the rationale for separating electricity from energy is not clear. Furthermore, the list of programs is hardly inclusive of all major economic activity. Several sectors—finance, insurance, communication, and government—are noticeably absent. Nevertheless, the Swedish effort is an interesting example of an actual attempt to restructure the secondary curriculum around an industry focus.

Table 2.—Swedish upper secondary school: 16 national programs

Aesthetic
Childcare and leisure hotel and restaurant trades
Construction
Electricity
Energy
Foodstuffs
Handicrafts
Health care
Industry
Land and animal husbandry
Media
Natural sciences
Social sciences
Trade and administration
Transport technology

SOURCE: National Agency for Education, Stockholm, Sweden.

In the United States, several industry taxonomies have been developed for the purpose of collecting economic and demographic statistics—the Standard Industrial Classification (SIC), for example. These, however, were never designed with curriculum in mind. The American College Testing Corporation (ACT) uses a complicated "world of work map" as the underlying framework for DISCOVER, its computer-based career planning system, but the resulting categories are not easy to relate to recognizable industries.

For simplicity, coverage, and ease of understanding, perhaps the most elegant taxonomy is one developed by John Gnaedinger, an engineer with a strong interest in promoting a refashioned system of career education for young people. Gnaedinger divides the U.S. economy into 16 industries that in the aggregate capture virtually every form of economic activity in the legal, paid economy. Table 3 displays his categories. Gnaedinger was mainly concerned with finding a format for providing high school students with information about a wider range of career opportunities than the mix traditionally included in vocational education; however, he also envisioned organizing the curriculum of entire schools, or schools-within-schools, around these industry classifications.

Table 3.—The Gnaedinger taxonomy: 16 industries

- Arts, culture, and religion
- Build environment
- Communication
- Education
- Energy
- Finance
- Government
- Hospitality
- Insurance
- Manufacturing
- Natural resources
- Personal and business services
- Retailing and wholesaling
- Transportation

SOURCE: STS Consultants. Ltd.

The Gnaedinger taxonomy is a fine start to discussing the organization of an industry-based curriculum. What, then, are the substantive areas that might make up the curriculum?

Major Aspects of Industry-Based Curriculum

One of the newest and potentially most important features of the 1990 Carl Perkins Act was its language directing states to assess the capacity of vocational education to provide students with "strong experience in and understanding of all aspects of the industry the students are preparing to enter."[7] It is, of course, impossible to teach anyone all aspects of anything, and in reading the law, it is clear what its framers had in mind—attention to such topics as planning, management, finances, technical and production skills, underlying principles of technology, labor and community issues, and health, safety, and environmental issues. Whether this is the right list can be debated (a somewhat modified list is suggested below), but clearly the lawmakers sought to broaden considerably the focus of traditional vocational education.

The power of the "all aspects" notion lies not in its ability to outline alternative knowledge and skills students need to master in lieu of, or in addition to, the specific job skills that have been the objective of vocational education. Rather, the significance is its aim to structure a different way for students to learn about the world of work. It is not especially important, for example, that students in the Built Environment Program know asbestos constitutes a major health hazard in buildings constructed in the past 50 years. This problem may soon disappear. It is more important for students to understand that molding the built environment carries with it potentially dangerous and often unanticipated health hazards and that these are caused or exacerbated by technological, financial, historical, political, and cultural factors that happen to be operating. Being aware of these hazards, understanding how to identify them, having strategies for figuring out how to address them is what students need to learn in developing an understanding of this aspect of an industry.

To promote this kind of learning, an industry-based curriculum needs to consider at least eight major influences on the functioning of an industry in modern America.

- *Structure and Organization*—what is the basic function of the industry in the economy, and how is production organized to yield its primary goods and services?

- *History*—how has the industry evolved, and what are the major historical forces that have influenced its development and are likely to continue to shape it in the future?

- *Technology*—what are the principles of technology upon which production depends, and how are these changing?

- *Economics*—how does the industry function economically—locally, regionally, nationally, and worldwide—and how does it interact economically with other industries?

- *Human Resources*—who works in the industry, what do they do, what do they need to know, how do they learn, and how do they interact with one another?

- *Government*—how does the industry interact with local, state, and federal governments, as well as the governments of other nations?

- *Health and Safety*—what are the health and safety concerns associated with working in the industry?

- *Environment*—how does the industry interact with the natural, built, and social environment?

With each of these aspects, the curriculum emphasis should not be on a particular body of industry knowledge and skills—although students will most certainly need exposure to these—but on gaining experience with strategies for learning about each of these topics and understanding how they influence the functioning of an industry and workers' roles within it.

Delivering Industry-Based Curriculum

Delivering a coherent 4-year, industry-based curriculum at the high school level would require a minimum of about eight teachers. Six of these would be academic teachers—one each in English, math, history, social studies, foreign language, and two in science. Two would be vocational teachers. Hence, an industry-based program would probably involve around 200 students, assuming an average student/teacher ratio of about 25:1.

Most high schools, therefore, would be unable to offer the full array of 16 industry programs. Instead, high schools would specialize in selected industries. Some high schools, regardless of size, might organize the entire curriculum around a single industry—the ABC High School of Health or the XYZ High School of Transportation, for example. Other high schools might concentrate on two to four industries.[*] A high school's choice of particular industries would depend, in part, on the knowledge, interests, and skills of their existing teachers, as well as the potential for involving selected nearby related businesses. Districts with more than one high school, especially large cities, would presumably attempt to avoid program duplication and encourage schools, as a group, to offer a wide array of industry programs. Students would be free to choose among high schools in order to participate in the industry that most interested them. In effect, every high school would become a magnet school.[**]

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[*] These high schools would resemble some of the academy models, or schools-within-schools, that already organize curriculum around an industry or occupational cluster for subsets of students.

[**] This is not really a new idea. Phoenix, as part of its desegregation program, developed a specialized program (although not usually "industry based") at each of its high schools. Chicago Careers for Youth, at the urging of John Gnaedinger, has proposed an industry-based plan for Chicago's high schools. The strategy, however, is currently limited to very few school systems. The reason, in part, is these approaches have evolved as ad hoc local solutions without any common framework for wider replication. In any event, the magnet school strategy needs serious re-examination. As fine as some of these schools are, the strategy is really a kind of

Diverse program offerings and student choice would be more difficult to provide in smaller, more sparsely populated districts. Isolated rural areas, for example, would be hard pressed to offer a comprehensive program in even a single industry. Nevertheless, this is a curriculum problem inherent in the makeup of small, isolated schools regardless of the curriculum strategy adopted. Focus, even in these difficult situations, is still a worthy objective, and an industry-based curriculum is still feasible, albeit on a smaller scale and without some of the depth that is possible in a larger school.

An industry orientation, of course, is not the only strategy for focusing curriculum, and the approach suggested here is compatible with other approaches to delivering secondary education. For example, larger urban districts, with some high schools organized around large industries, might also choose a non-industry focus (perhaps science) for some other schools. Whatever the focus, however, it must be broad enough to avoid or minimize the stratification by social status, race–ethnicity, and sex that typify traditional curriculum offerings. An industry-oriented curriculum accomplishes this objective. By promoting it, however, we are not suggesting it is the only way to reorganize high schools or all students must choose an industry focus.

Roles for Academic and Vocational Teachers

An industry-based curriculum is not simply a reworking of traditional vocational offerings. On the contrary, it permeates the entire high school curriculum and will require modifications in curriculum content and teaching methodology by both academic and vocational teachers. The required changes, however, are not so radical as to paralyze action and stymie reform. It is possible to introduce an industry-based curriculum without eliminating the distinction between academic and vocational teachers or breaking down the boundaries of the traditional academic disciplines. As desirable as such changes may be, in most schools they are threatening to teachers and block progress rather than facilitate it.

Successful implementation of an industry-based curriculum would be helped, however, by three important modifications in the roles of academic and vocational teachers. First, academic and vocational teachers should be encouraged to view their roles as providing students with understanding and experience in an industry, in addition to the more specialized fields represented by their academic or vocational concentrations.* Second, and closely related to the first change, academic teachers should be encouraged to develop an industry specialization and vocational teachers an academic specialization. An English teacher, for example, might opt for an industry specialization in agriculture, and a Built Environment teacher might choose to specialize in math or history. Third, both academic and vocational teachers should seek to develop their curricula and teaching methods around more long-term student projects that address real issues and problems prevalent in their chosen industries. These projects would become one of the primary means for encouraging integration of knowledge and skills and applying them to real world situations.

Finally, serious consideration should be given to restructuring the organization of vocational credentials around industry rather than occupational classifications. As suggested earlier, it may even be desirable to drop the label "vocational teacher" and instead recognize these teachers as "industry specialists."

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lottery or triage approach to education—a very fine education for a relatively small number of students able or fortunate enough to take advantage of the opportunity.

* There are strategies for encouraging this industry identification. One approach would be to require all teachers, academic and vocational, to take an "industry sabbatical" of 6–9 months every 5 years. Similarly, an industry internship could become part of every teacher's student teaching experience.

Roles for Business and Labor

An industry-based curriculum might considerably simplify the problem of creating an effective, wide-reaching role for business and labor in a national school-to-work initiative. As desirable as it might be, the prospect is extremely remote that business and labor in the United States will soon make the same commitment of time and resources as some of their European counterparts to a thoroughly integrated program of classroom instruction and work-based learning. If the school-to-work initiative depends on business and labor restructuring work and the kinds of jobs routinely available to young people and instead providing them with experience in high performance workplaces, the initiative will surely fail or at best reach a very small number of young people.

The fact is most high school students work. For most of them, the jobs are not very high skilled, and they do not pay well. However, they are real, need to be done, and provide a useful introduction to the world of work. The educators' challenge is to develop an industry-based curriculum that effectively draws upon the experiences of students in the kinds of jobs they are most likely to obtain while in high school rather than expecting employers to create vastly different kinds of opportunities. A well-designed hospitality curriculum, for example, could make very effective use of the kinds of experiences students gain in fast-food jobs. A well-designed program could significantly increase the value of these experiences for students as well as employers.

Rather than focusing on changing job opportunities for students (a desirable goal, to be sure), the role of employers in an industry-based curriculum would consist of at least four functions. First, employers would be expected to provide a real work environment in which students can apply the knowledge and skills they acquire in the classroom. Wherever possible, employers should be expected to team a student worker with one or more journeymen who would serve as experienced mentors. Second, employers should be invited to participate in identifying knowledge and skills, which are broadly defined, that are likely to serve students well over the long term should they decide to pursue careers in a particular industry. Employers should not be allowed to solely determine or even dominate the definition of curriculum content. These issues are too important to be turned over to one interested party, whose vision may be short sighted and self-serving.

Third, employers should be expected to help identify and structure real problems that student workers can investigate and attempt to solve. Employers need to be willing to work with teachers as well as students in this problem definition. These problems would become a central feature of the studios that are part of each student's annual program. Fourth, employers should participate in evaluating the performance of the student workers, especially their problem-solving and teamwork skills.

Employers can perform these functions best. They do not markedly interfere with their primary needs to focus on conducting business. Indeed, successfully performing these functions should enhance the productivity of their student workers. Restructuring the American workplace and upgrading the immediate employment opportunities of young people are important goals; however, they need not be added to the already large burden of fashioning an effective program of school-to-work transition.

Conclusion

Ever since vocational education began as a distinct course of study in the late 19th century, policymakers and educators have debated its relevance and have repeatedly called for change. Since 1906, there have been no fewer than 16 national studies or commissions—an average of one every 5 years—charged with assessing the educational aims of vocational education and its implications for social, employment, and economic development policy.[8] The findings and recommendations of these efforts are remarkably similar and consistent. The following two conclusions have appeared time and again:

- Vocational programs focus too narrowly on specific occupations; and

- Vocational education overemphasizes narrow occupational skills to the exclusion of more general academic knowledge, and programs function in isolation from the rest of education.[9]

For more than 80 years, the nation has made little progress on these two fronts. There are any reasons for this failure. One cause, however, has been the absence of a clear alternative framework for restructuring the high school curriculum to promote a wider focus. The approach outlined here is intended to stimulate serious discussion about how best to accomplish this aim.

Moreover, it should be apparent that this task is not simply limited to changing vocational education in the United States. A successful school-to-work initiative depends on transforming both vocational and academic education. To single out vocational education for America's failure to prepare our youth for the world of work is to completely misunderstand the functioning of the nation's educational enterprise. We are a nation that has been very ambivalent about dedicating education to workforce preparation. Indeed, that ambivalence perhaps explains our predilection for isolating this responsibility in the vocational curriculum so we do not contaminate the rest of the curriculum with this suspect business.

Work is a central focus of the lives of nearly all Americans. It consumes a large proportion of our most productive hours. Preparing us to conduct this part of our lives efficiently and with a high degree of personal satisfaction should not be the only aim of education. It is, however, an objective that should permeate our school experience. It is too important, and potentially far too interesting, to be relegated to a small isolated corner of the school curriculum.

Notes

1. This problem has been well documented. For example, see Paul Osterman, *Getting Started: The Youth Labor Market* (Cambridge, MA: MIT Press, 1980); William T. Grant Foundation Commission on Work, Family, and Citizenship—Youth and America's Future, *The Forgotten Half: Non-College Youth in America* (Washington, DC: The William T. Grant Foundation, November 1988); and McKinley L. Blackburn, David E. Bloom, and Richard B. Freeman, "The Declining Economic Position of Less Skilled American Men," in *A Future of Lousy Jobs* (Washington, DC: The Brookings Institution, 1990).

2. E. Gareth Hoachlander, Phillip Kaufman, Karen Levesque, and James Houser, *Vocational Education in the United States: 1969–1990*, table 5, 17.

3. E. Gareth Hoachlander, Phillip Kaufman, Karen Levesque, and James Houser, *Vocational Education in the United States: 1969–1990*, table 10, 27.

4. John Tuma, forthcoming.

5. Phillip Kaufman, *A Comparison of Vocational and Nonvocational Teachers in Grades 9 through 12* (Washington, DC: National Center for Education Statistics, 1992).

6. For an excellent discussion of the importance of focus in elementary and secondary education, see Paul Hill, *Schools with Character* (Santa Monica, CA: The RAND Corporation, 1992).

7. See V. Mitchell, E.S. Russell, and C.S. Benson, *Exemplary Urban Career-Oriented Secondary School Programs* (Berkeley, CA: National Center for Research in Vocational Education, University of California, Berkeley, MDS-012, September 1990); Larry Rosenstock, "The Walls Come Down: The Overall Reunification of Vocational and Academic Education," *Phi Delta Kappan* (February 1991): 434–437.

8. Section 113 (a)(3)(B)(i), emphasis added.

9. For an excellent summary, see Stuart Rosenfeld, *What Goes Around Comes Around: Studies of Federal Vocational Policy* (Chapel Hill, NC: Regional Technology Strategies, August 1993).

10. Ibid., 5–7.

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SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION U.S. DEPARTMENT OF LABOR

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SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION U.S. DEPARTMENT OF LABOR

FACT SHEET

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The State/Local Partnership Approach

The success of the School-to-Work Opportunities initiative will depend on strong partnerships at the local and state levels. The federal role reflects that commitment to a bottom-up--rather than a top-down--approach. The two federal agencies involved--the U.S. Department of Labor and the U.S. Department of Education--are working collaboratively to help states and localities build school-to-work systems that will best meet their needs.

In keeping with this grass-roots approach to implementation, the Departments of Education and Labor will rely heavily on their field staffs. Field personnel will disseminate information, serve as liaison to headquarters when technical assistance is needed, and help build momentum among stakeholders in the community.

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SCHOOL TO WORK
OPPORTUNITIES
U.S. DEPARTMENT OF EDUCATION U.S. DEPARTMENT OF LABOR

RESOURCE MATERIALS RELEVANT TO SCHOOL-TO-WORK

- ***Building a System to Connect School and Employment***, published by the Council of Chief State School Officers and the American Youth Policy Forum. Available from AYPF, 1001 Connecticut Avenue, N.W., Suite 719, Washington, D.C. 20036, Telephone 202/775-9731.

  A synopsis of five seminars focused on connecting school to work, including background materials and the presentations from each session.

- ***Career Academies: Partnerships for Reconstructing American High Schools***, by Stern, Raby and Dayton, 1992. Available from Jossey-Bass Inc., 350 Sansome Street, San Francisco, CA 94104, Telephone 415/433-1740.

  Explains the design and functioning of the career academy that focuses on career preparation. Provides step-by-step guidance for setting up an academy and tells how to build effective school-business partnerships.

- **"Development of Organizational Skill Standards in Education,"** Chapter 7, from *An Overview of Skills Standards Systems in Education and Industry* by Joan Wills, for the U.S. Department of Education. Available from the Institute for Educational Leadership, Inc., 1001 Connecticut Avenue N.W., Suite 310, Washington, D.C. 20036, Telephone 202/822-8405.

  A summary of the activities in all of the states relating to the development and use of occupational skill standards initiatives.

- ***Directory of State Systems Change Projects on Transition***, National Transition Network, April 1994. Available from the Federal Resource Center, Telephone 202/862-1900.

  Contains abstracts of transition programs for students with disabilities. The projects are located in 30 states, and were funded by the U.S. Department of Education, Office of Special Education and Rehabilitative Services. The abstracts include project activities, project staff, and any subcontractors.

- ***Minority Youth and the School-to-Work Opportunities Act,*** by Jobs for the Future, 1993. **Available from JFF, One Bowdoin Square, Boston, MA 02114, Telephone 617/742-5995.**

  A paper containing questions and answers focused on the provisions contained in the School-to-Work Opportunities Act regarding minority participation; policy positions; and specific issues of concern to minority youth advocates.

- ***Minor Laws of Major Importance: A Guide to Federal and State Child Labor Laws.*** **Available from the National Institute for Work and Learning, 1875 Connecticut Ave., N.W., Washington, D.C. 20009, Fax 202/884-8422.**

  Resource for employers, students, parents and educators, listing federal and state-by-state restrictions and requirements for minors as well as key federal and state office phone numbers.

- ***National Assessment of Vocational Education, Final Report to Congress.*** Published by the U.S. Department of Education, Office of Educational Research and Improvement (OERI), June 1994. **Available from OERI, 555 New Jersey Ave., N.W., 6th Floor, Washington, D.C. 20208, Telephone 202/219-1301.**

  This report was mandated by the 1990 Carl D. Perkins Act. Before Congress reauthorizes the Perkins Vocational Education Act in 1995, the report states, they need to consider the critical role of vocational education in today's economy and society. Vocational education needs to change radically in the next decade, it finds, and suggests some directions those changes should take.

- ***Occupational Skill Standards Projects,*** U.S. Department of Education, U.S. Department of Labor, June 1994. **Available from Carolyn Lee, U.S. Dept. of Education, 202/260-9576.**

  Contains abstracts of 22 pilot skill standards projects funded by the two Departments, covering some nineteen major industrial areas. Funded in 1992 and 1993, the skills standards to be developed over a 24 to 36-month period must be compatible with world-class levels of industry performance.

- ***School-to-Work: What Does Research Say About it?*** Published by the U.S. Department of Education, Office of Educational Research and Improvement (OERI), July 1994. Available from OERI, 555 New Jersey Avenue, N.W., 6th Floor, Washington, D.C. 20208, Telephone 202/219-1301.

  A compilation of six commissioned research papers on subjects such as vocational education and employment in Germany, industry-based education as a new approach for school-to-work, and a map of federal legislation related to the school-to-work initiative.

- ***Serving Job Seekers and Career Changers, A Planning Manual for Public Libraries***, by Durance, Savage, Ryan and Mallinger, published by the American Library Association (ALA), March 1994. Available from the ALA, 1-800-545-2433, ext. 7.

  Outlines the more than 120 Education and Job Information Centers that exist in public libraries across the country.

- ***Tech Prep: Effective and Promising Practices Guide***, by Gabrielle Banick Wacker, Center on Education and Work, School of Education, University of Wisconsin, Madison. Available from CEW, 964 Educational Sciences Building, 1025 West Johnson Street, Madison, WI 53706-1796, Telephone 608/263-3696.

- ***Tech Prep Counseling: A Resource Guide***, by Catherine Chew, Center on Education and Work, University of Wisconsin, Madison. Available from CEW, 964 Educational Sciences Building, 1025 West Johnson Street, Madison, WI 53706-1796, Telephone 608/263-3696.

- ***The School-to-Work Transition and Youth Apprenticeship: Lessons from the U.S. Experience***, by Thomas Bailey and Donna Merritt, March 1993. Available from Manpower Demonstration Research Corp., 3 Park Avenue, New York, NY 10016, Telephone 212/532-3200.

  A monograph of existing U.S. programs that combine schooling with work, including agricultural education, such as the 4-H, cooperative education, tech prep, and career academy programs.

- ***Hands and Minds; Redefining Success in Vocational Technical Education***, 1992. The Education Writers Association, Suite #310, 1001 Connecticut Ave. NW, Washington, DC 20036, (202) 429-9680.

- ***Tech Prep; A Review of Current Literature***, 1993. Mathematica Policy Research, Inc., Princeton, NJ 08543-2393. Contact: Alan Hershey (609) 799-3535.

- ***Transition from School to Work: States Are Developing New Strategies To Prepare Students for Jobs***, published by the U.S. General Accounting Office, September 1993 (GAO/HRD-93-139).

- ***Using Youth Apprenticeship To Improve the Transition to Work: An Evaluation of System Development in Eight States***. Policy Studies Associates, Inc., Suite 400, 1718 Connecticut Ave. NW, Washington, DC 20009, (202) 939-9780.

- ***Youth Apprenticeship in America: Guidelines for Building an Effective System***, 1992. William T. Grant Foundation, Commission on Youth and America's Future, Suite 301, 1001 Connecticut Ave. NW, Washington, DC 20036.

Resources

Profiles of National Organizations with Goals 2000-Oriented Activities and Resources

In the following pages are profiles of selected national organizations with ongoing activities and resources related to Goals 2000 and systemic education reform. The organizations included, however, form an incomplete list. We invite you to add to it. Please either prepare a profile or provide us with the name of a contact person in the organization you would like us to include in our next resource mailing. Send the information to: Lance Ferderer, U.S. Department of Education, OERI/ORAD, Room 506C, 555 New Jersey Avenue NW, Washington, DC 20208. We look forward to hearing from you and having an expanded set of profiles available for upcoming Goals 2000 meetings.

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Contact: Gary Marx
Phone: 703-875-0737
Fax: 703-841-1543

Projects, Programs, and Services

Founded in 1865, the American Association of School Administrators (AASA) offers a number of programs, products, and services to enhance the leadership of the nation's schools. Its 17,000 members include school superintendents, other central administrators, principals, and professors and administrators of administrator and teacher education programs.

Among its programs and services, AASA sponsors:

- A National Academy for School Executives
- A National Strategic Planning Center for schools
- A National Curriculum Audit Center

Focus points for the coming year include:

- Schools for the 21st Century
- The condition of children
- Improving school leadership

Resources

- *The School Administrator* (monthly magazine)
- *Leadership News* (newspaper)
- Books, booklets, audiovisual programs

Meetings, Events

AASA sponsors numerous conferences, such as the annual Suburban Superintendents Conference, the Small Schools Conference, the We Care Conference, and the National Conference of Women School Executives. It will hold its next Annual Conference on Education on February 10-13, 1995, in New Orleans, Louisiana.

American Federation of Teachers

Address: 555 New Jersey Ave NW
Washington, DC 20001

Contact: Eugenia Kemble
Phone: 202-879-4463
Fax: 202-879-4537

Projects, Programs and Services:

The American Federation of Teachers (AFT) provides its members and affiliates with a wide range of programs and services, including research and technical assistance on contract negotiations, lobbying in Washington, D.C., and a variety of newspapers, magazines, and newsletters.

The main policy concerns focus on:

Clear, rigorous, internationally competitive academic standards
Orderly, safe schools
Incentives for students to work hard
Programs for children in crisis and that promote school readiness
School-to-work transition
Parental involvement
High-quality professional development

AFT activities:

- the Educational Research and Dissemination Program, a professional development network that exposes AFT members to the latest educational research on general instruction techniques and learning theory, as well as specific academic content;

- technical assistance and policy guidance to AFT affiliates;

- reform analysis for affiliates, including review of standards documents, legislation, and other proposed systemic reform plans;

- technical assistance on contract negotiations, including the incorporation of language that promotes school reform.

Resource Documents

- Briefing Packets. Collections of about 20 articles, reports, and documents on selected significant issues, designed to provide AFT leaders and members with an in-depth introduction to the issue. Can also serve as the basis for schoolwide or community discussions.

- Defining World-Class Standards. Collections of assessments, curriculum documents, and related materials from other nations with high-achieving school systems in order to provide American audiences with a fuller sense of what "world-class" standards look like. The series' inaugural volume, *What College-Bound Students Abroad Are Expected To Know About Biology*, is now available.

- *Achieving High Standards*, a 36-page booklet, includes a major speech by AFT President Albert Shanker arguing for high standards plus data on U.S. student performance and academic standards abroad.

- *U.S. Education: The Task Before Us*, a 24 page booklet, includes AFT convention resolution in support of high standards and broad systemic reform, along with background material.

- *Helping Your Child Learn Math* and *Helping Your Child Learn to Read*. Co-published with the U.S. Department of Education's Office of Educational Research and Improvement. 60-page booklets aimed at parents and filled with learning activities parents can do with their children.

- *Research and Policy Reports*. On such issues as private management of public schools, private school choice and vouchers, teacher salaries, and teacher working conditions in the United States and abroad.

Meetings, Events

- Biannual QuEST professional issues conference, which attracts more than 2,000 education reform activists. The next conference will be held in July 1995.

- AFT holds occasional meetings for such groups as local union presidents and paraprofessionals and school-related personnel. A 1994-95 conference on school discipline and safety is planned.

- AFT also holds occasional meetings on pressing issues.

Communications, Networks

- *QuESTLine*. A regular newsletter that goes to local offices and other AFT education reform leaders.

- *American Educator*. A quarterly journal that goes to all AFT members.

Association for Supervision and Curriculum Development

Address: 1250 North Pitt Street
Alexandria, VA 22314

Contact: Gene R. Carter
Phone: 703-549-9110
Fax: 703-549-3891

ASCD is an international, non profit association that provides professional development experiences and training in curriculum and supervision; disseminates information; and encourages research, evaluation, and theory development. ASCD's members include superintendents, principals, supervisors, teachers, specialists, school board members, higher education professors and central office staff. The Association looks beyond isolated concerns to address systemic issues as it works to restructure education and create a better future for all students.

ASCD focuses its work in the following areas:

Training and Professional Development

- workshops (1-5 days in duration)
- mini-conferences
- satellite broadcast training
- teleconferencing
- curriculum/technology briefings
- award-winning video-based training programs
- customized district-level training

Information Dissemination

- more than five million publications distributed yearly
- *Educational leadership*, a magazine
- newsletters, including *ASCD Update*
- books
- *Journal of Curriculum and Supervision*, a quarterly
- audio and video-based staff development programs
- issues analyses
- affiliate organizations in all states, three territories and 13 international locations
- 45 member-initiated networks (curriculum areas and pedagogical techniques)
- an annual conference attracting 10,000 to 12,000 participants

An Information Base of Best Research-Based Practices

- focus groups and expert panels
- current analysis of effective curriculum and instructional practices
- comparative state-by-state analysis of curriculum frameworks
- issues analyses of educational and legal issues and other controversies
- online database research on all subjects, practices, and statistics
- polling of leading experts and practitioners
- information from surveys and trends research
- statistical analyses

Facilitation and Design Integration

- mediation/facilitation/interpretation services
- technology integration
- team building
- objective process observation
- conflict resolution (values/legal issues

The Business Roundtable

Address: Education Initiatives
1615 L Street NW, Suite 11
Washington, DC 20030

Contact: Susan Traiman
Phone: 202-872-1260
Fax: 202-466-3509

Projects, Programs, and Services

The Business Roundtable promotes systemic reform in each of the 50 states through a *nine-point agenda* geared to a performance expectation for the schools. The Roundtable operates in each state through the leadership of a CEO, who forms a partnership with political and education leaders in advocating changes in state law consistent with the nine-point agenda.

One of the primary tools for action is the preparation of a *Gap Analysis* report in each state. The 17 reports prepared to date assess the current status of education in each state versus the model contained in the Roundtable's public policy agenda and identify the gaps that need to be closed. *Gap Analysis* reports serve as the basis for legislation in several states.

Resource Documents

Copies of *The Essential Components of a Successful Education System: Putting Policy into Practice* are available free of charge.

Communications, Networks

- Regular information updates are sent to the 32 companies that comprise the Roundtable's Education Task Force; less frequent communications go to the 180 companies involved in the Roundtable's education initiative.
- The Roundtable and four other organizations, including the U.S. Department of Education, sponsor the "Keep the Promise" public service advertising campaign, whose goal is to secure public support for reform.

Consortium for Policy Research in Education

Address: The Policy Center and the Finance Center
Carriage House at Eagleton Institute
of Politics
Rutgers University
86 Clifton Ave.
New Brunswick, New Jersey 08901-1568

Contacts: Susan Fuhrman
Lynn McFarlane
Phone: 908-932-1331
Fax: 908-932-1551

Projects, Programs, and Services

The Consortium for Policy Research in Education (CPRE) is a joint venture of Rutgers State University of New Jersey, Harvard University, Stanford University, the University of Michigan, and the University of Wisconsin-Madison. The venture is funded by the Office of Educational Research and Improvement (OERI) at the U.S. Department of Education.

CPRE conducts research related to education policy and finance, including systemic reform. The Consortium is currently examining reform in 19 states, looking at vital technical, political, and implementation issues. The Consortium reports its research findings in its own publications, as well as in reports, journal articles, and book chapters published by others. Affiliated researchers report their findings at national, regional, and local meetings of a wide range of organizations.

Resource Documents

Recent CPRE publications are available in:

- Curriculum and Student Standards;
- Education Finance;
- Education Indicators;
- Evolution of the Reform Movement;
- New Roles and Responsibilities;
- and Teacher Policy.

Examples of recent policy and finance briefs (free):

- "Teachers' Professional Development and Education Reform."
- "Developing Content Standards: Creating a Process for Change."
- "Politics and Systemic Reform."
- "Including Finance in Systemic Reform."

Examples of recent reports:

Diane Massell and S. Fuhrman, *Issues and Strategies in Systemic Reform.* (1993)

Massell, Fuhrman, et. al., *Ten Years of State Education Reform.* (1994)

Examples of Books by CPRE Researchers--new releases

Designing Coherent Education Policy: Improving the System. Susan H. Fuhrman, editor. Jossey-Bass, Inc., San Francisco, 1993.

Decentralization and School Improvement: Can We Fulfill the Promise? Jane Hannaway, Martin Carnoy, editors. Jossey-Bass, Inc., San Francisco, 1993.

The Council for Exceptional Children

Address: 1920 Association Drive
Reston, VA 22091-1589
Phone: (703) 620-3660

Contact: Joe Ballard
Phone: 703-264-9406
Fax: 703-264-9497
Cassandra Rosado
Phone: 703-264-9409
Fax: 703-264-9497

The Council for Exceptional Children

CEC is the largest international professional organization dedicated to improving educational outcomes for individuals with exceptionalities—students with disabilities and those who are gifted. CEC accomplishes its mission on behalf of educators and gifted. CEC accomplishes its mission on behalf of educators and others working with individuals with exceptionalities by advocating for appropriate government policies; setting professional standards; providing continuing professional development; and helping professionals obtain conditions and resources necessary for effective professional practice.

Established in 1922, CEC is an active network of 59 State/Provincial Federations, 900 local Chapters, 17 topical Divisions, and 275 Subdivisions. The Divisions involve focus on specialty areas and include the Division for Learning Disabilities, the Division for Educational Diagnostic Services, the Council of Administrators of Special Education, the Association for Gifted, and the Division for Culturally and Linguistically Diverse Exceptional Learners.

Inclusive Schools Initiative

CEC has been instrumental in exploring and developing reform-oriented efforts that provide opportunities for all children to participate in meaningful change. Research has shown that most children with disabilities do best when educated in the same environments with their nondisabled peers.

This practice of including children with disabilities in general education environments has been the focus of CEC's Inclusive Schools Initiative. The initiative, a collaborative effort involving 10 national education organizations, will support a number of institutes to be held across the country, as well as the production and publication of several resources.

CEC's library of reform-based Inclusive Schools products include:

- Topical Bibliography on Inclusive Schools
- Organizational, Instructional and Curricular Strategies to Support the Implementation of Unified, Coordinated and Inclusive Schools

- Inclusive Schools: Principles of Good Practice

- Inclusion: Ensuring Appropriate Services to Children and Youth with Emotional/Behavioral Disorders
- Inclusion Video Package

CEC Information Center

The Council for Exceptional Children provides access to the largest international library and database specializing the education of children with disabilities and those who are gifted. Examples of information projects supported by CEC's Information Center:

- ERIC Clearinghouse on Handicapped and Gifted Children: journal articles and research reports, catalogued, indexed, and abstracted by CEC for this national education database;

- ERIC/OSEP Special Project: the improvement, understanding, and dissemination of research in special education;

- National Clearinghouse for Professional in Special Education: information about careers in special education, related services, and early intervention.

Resources/Publications

The Council for Exceptional children is a major publisher of special education literature, including two journals, *TEACHING Exceptional Children* and *Exceptional Children*. Other publications of interest to those involved in systemic, comprehensive educational reform include:

- Life Centered Career Education curriculum package
- Integrated Services for Children and Youth with Emotional and Behavior disorders
- Mini-Libraries, including: Classroom Management, Exceptional Children at Risk, and Working with Behavior Disorders
- Issues and options in Restructuring Schools and Special Education Programs

Conferences and Events

CEC strives to improve educational outcomes for individuals with exceptionalities by developing programs to help teachers, administrators, and related services personnel to improve their practice. CEC provides continuous opportunities to advance professional growth and to share new knowledge and skills through the annual convention, topical conferences, symposia, academies, and workshops. Upcoming on April 5-9, 1995, is CEC's 73rd Annual Convention, "Racing to Excellence," in Indianapolis, Indiana.

Council of Chief State School Officers

Address: One Massachusetts Avenue, NW,
Suite 700
Washington, DC 20001-1431

Contact: John T. MacDonald
Phone: 202-408-5505
Fax : 202-408-8072

Projects, Programs and Services

Representing every State Education Agency (SEA), the Council of Chief State School Officers provides a number of services:

- Serves states directly on systemic reform through its Centers on Assessment, Educational Equity, Technology, and Leadership;
- Maintains a database of each state's current capacity for Systemic Education Planning and Activities;
- Issues policy statements and guidance on the implementation of systemic strategies;
- Conducts programs and activities for states about systemic reform as advocated in the Goals 2000: Educate America Act;
- Provides states with technical assistance on Goals 2000, standards, assessment, equity issues, opportunity to learn, state planning and alignment of federal, state, and local programs; and
- Operates an electronic network linking all states for communications on Goals 2000.

In direct support of the implementation of Goals 2000, CCSSO has organized a major part of all its projects in a coordinated "Goals 2000 - TA", technical assistance program. State education agencies, Governors' offices, and other state agencies will be served by individual state consultation or through multistate consortia on topics of application preparation, state plan preparation, standards development, assessments, learning technology plans, goals 2000 and school-to-work links, and education flex and waiver proposals.

- Establishing standards and aligning them with professional development and assessment strategies in coordination with the National Education Goals Panel, the National Education Standards and Improvement Council, multistate assessment consortia, and teacher and principal licensure consortia to help states in developing standards and assessments for both students and professionals;

- Preparing state plans through direct technical assistance on plan development, the evaluation criteria and the review process in collaboration with the U.S. Department of Education, National Governors' Association, National Association of State Boards of Education, National Council of State Legislators, and the Education Commission of the States and their state counterparts. This collaborative effort will facilitate state networking and the exchange of "best practice" in, as well as alerting states to, major problems in the development and approval of state plans. A data base on state systemic reform is central to the technical assistance work.

- Designing statewide Local Education Agency (LEA) and Professional Development (PD) grant programs on strategies to promote statewide innovations through a coordinated effort with such groups as the New American Schools Development Corporation, Coalition of Essential Schools, and the New Standards Project. These efforts will draw upon strategies from federal programs in ED, the National Science Foundation, the Department of Labor, and the National Endowments for the Arts and for the Humanities.

- Building new state/federal partnerships for systemic reform and improvement through the joint development of flexible, efficient procedures for state plan development and program implementation by aligning of the Goals 2000 state grant administration with other federally funded grants and technical assistance efforts.

Organizational contacts:

- State Leadership Project
  John T. MacDonald (202) 336-7008
- Learning Technologies Program
  Frank Withrow (202) 336-7003
- Resource Center on Educational Equity
  Cynthia Brown (202) 336-7007
- State Assessment Center
  Ramsay Selden (202) 336-7010

Resource Documents

Publications information is available from CCSSO Publications, One Massachusetts Avenue, NW, Suite 700, Washington, DC 20001-1431. Contact: Paula Delo, (202) 336-7005. Publications include:

- *Restructuring Learning: 1990 CCSSO Summer Institute Papers*, 1993
- *Systemic Strategies for Improved Student Results: Policy Statement*, 1994
- *State Systemic Education Planning--Status in Your State*, March 1994
- *State Readiness for Goals 2000, A Preliminary Regional Report*, March 1994
- *Goals 2000 State Planning and Implementation Checklist*, a management and control instrument to guide state activities, March/April 1994
- *American Issues for School and the Workplace: 1991 CCSSO Summer Institute Papers*, Spring 1994
- *State Baselines for Goals 2000 Implementation*, April 1994
- *Goals 2000: Educate America Act: Summary of the Act Prepared by Council of Chief State School Officers*, April 1994

- *Preliminary Guidance for SEA Actions To Implement Title III, Goals 2000*, April 1994
- *Improving Student Results through State Leadership*, a planning and implementation guide and training model for Goals 2000, July 1994
- *A Report on the Inclusion of Limited-English-Proficient Students in State Systemic Reform Planning and Implementation*, August 1994
- *Policy Statement and Best Practices Guide on State Implementation of Goals 2000*, 1994

Meetings, Events

In addition to its annual meeting, CCSSO sponsors numerous other events that focus on state capacity, planning, leadership, and other issues related to education improvement.

Communications, Networks

- CCSSO operates an electronic network linking all states for communications on Goals 2000. Chiefline is a bulletin sent to the Chiefs twice a week on GTEnet.

- State Science Directors are networked through an IBM-developed bulletin board system used extensively to network math/science groups.

- State Assessment Directors are networked through America Online (AOL). AOL is implementing a new service to make Internet resources available to all AOL customers.

- CCSSO has installed a LAN and plans to use AOL to network Chiefs and Deputy Chiefs to spearhead systemic reform, using dialog, bulletin boards, quick alerts and data collection.

- CCSSO will serve as a clearinghouse on Goals 2000 information through its projects and centers, such as those for State Leadership, Technology, Assessment, and Resources.

Council of the Great City Schools

Address: Room 702
1301 Pennsylvania Ave. NW
Washington, DC 200004

Contact: Michael Casserely
Adrienne Bailey
Phone: 202-393-2427
Fax: 202-393-2400
Joseph Fernandez
Phone: 407-629-0275
Fax: 407-740-8177

Projects, Programs, and Services

The Council of the Great City Schools is an independent coalition of 50 of the Nation's largest urban public school systems, with a board of directors comprised of the superintendent and one board of education member from each city. The Council is working on the reform of urban education through the following activities:

- Establishing eight National Urban Education Goals, derived from the national goals;
- Convening two National Urban Education Summit Conferences with over 80 national groups;
- Collecting and publishing Baseline Statistical Indicators on the status of urban schools on the goals;
- Preparing federal legislation to provide federal aid to urban schools to meet the goals;
- Naming a National Commission on Urban Education;
- Developing a National Blueprint and Action Plan for the Improvement of Urban Schools;
- Designing a discrete project in each of the goal areas to help urban schools attain them;
- Developing a National Institute on Urban School Management with corporations, schools of business administration, and public sector managers to improve the management and sizing of urban schools;
- Creating an affiliated group of the Great City Colleges of Education to improve teacher recruitment, training, induction, and professionalization;
- Designing and constructing an Urban School Learning Network to tie inner city schools into the Nation's evolving information highways;
- Designing and operating collaborations with others to spur the number of minority teachers in urban schools;
- Designing a national model for state funding of urban schools; and
- Reviewing and implementing evolving national education standards for urban schools.

Resource Documents

- *Caring Schools, Caring Communities: An Urban Blueprint for Comprehensive School Health and Safety*
- *Systemic Reform of Mathematics and Science Education: An Urban Blueprint*
- *Critical Education Trends; A Poll of America's Urban Schools*
- *Urban School Safety: Strategies of the Great City Schools*

- *Strategies for Success: A Plan for Achieving the National Urban Education Goals*
- *National Urban Education Goals; Baseline Indicators, 1990-91*

Meetings, Events

- The date and place for the 1995 Annual Conference of the Great City Schools has still to be determined.
- The 2nd National Urban Education Summit is tentatively scheduled for March 1995, in Washington, D.C.

Communications, Networks

- *The Urban Educator* (monthly)
- *The Urban Legislator* (weekly)
- Electronic mail and bulletin boards
- *The Urban Indicator* (bimonthly)
- *The Urban Administrator* (bimonthly)

The Education Commission of the States

Address: 707 17th Street, Suite 2700
Denver, CO 80202-3427

Contact: Chris Pipho
Phone: 303-299-3604
Fax: 303-296-8332

Projects, Programs, and Services

The Education Commission of the States (ECS) has several ongoing projects specifically designed to support state systemic reform in both multiple states and individual states:

- Re:Learning, involving a partnership between ECS and the Coalition of Essential Schools, is grounded in the belief that meaningful school improvement requires comprehensive school redesign and that education policy at all levels must nurture innovation rather than create barriers to change. Participating states agree to work with ECS on redefining policy, administrative relationships, and governance structures to stimulate and support innovative school improvement.

- Systemic Change in Math and Science project assists states participating in the National Science Foundation's State Systemic Initiatives grant process. The project provides technical assistance and advice on proposal content, summarizing key national reforms, training facilitators, and convening national conferences.

- "Synergy" works to improve math and science education in three states (New Mexico, Pennsylvania, and South Carolina) as the cornerstone of education system change by hosting statewide meetings and teleconferences, convening planning teams from each state to learn from one another, sponsoring institutes on key reform issues, and training state facilitators. It also creates video and print materials to inform policymakers about the changes needed in the education system to support math and science reform.

- "Action Learning Labs", sponsored by the three projects noted above, convene key stakeholders from six states (Colorado, Delaware, Indiana, New Mexico, Ohio, and Pennsylvania) to come to consensus on new visions, to connect and align policies and projects in their state systems, to learn about systems change, and to redefine their individual roles in changing systems.

- Danforth Policy Makers' Program, a three-part policy program in conjunction with Danforth Foundation, National Governors' Association, and National Conference of State Legislatures, fosters collaborations between education and health and human services in states. State teams meet to learn from national experts and from other states engaged in similar activities and to increase coherence in the way all services are provided to children and their families.

- ECS Annual Meeting State Teams work state-by-state on issues and strategies of their choice related to systemic change. They are guided by materials to focus and stimulate conversation on how to change their systems, and are provided opportunities to share with other states.

- ECS Information Clearinghouse provides state leaders with up-to-date information on reforms in other states, as well as key contacts on pressing issues at the national, state, and local levels.

- Walter Annenberg Education Challenge Grant provides funds to enable ECS to facilitate systemic change in education policy that will enable states to scale-up school-level reform to system-wide levels.

- State-Specific Technical Assistance Efforts are underway to:

    — Help policymakers, the public, and experts come to a more broadly shared understanding of what can and should be done to improve the state's education system;
    — Identify ways to use existing projects and reform activities in the state in a more coherent way so that education reform can move past current political and resource barriers;
    — Connect outstanding teachers and administrators with policymakers to bridge the gap between effective practice and policy formulation; and
    — Facilitate the review of reform proposals to determine where the proposals are more coherent and well aligned and how well they fit with previous vision statements and education reforms.

Resource Documents

The following documents and products are currently available from ECS Distribution Center, 707 17th Street, Suite 2700, Denver, CO 80202-3427. FAX: (303) 296-8332.

Contact: Judy Feather
(303) 299-3692

- *State Education Leader*, published three times a year
- *What Communities Should Know and Be Able To Do about Education* (SM-93-1)
- *Building Private Sector and Community Support* (SI-92-2)
- *Creating Visions and Standards To Support Them* (SI-92-3)
- *Bringing Coherence to State Policy* (SI-92-4)

- *A Consumer's Guide, Volume 1* (SI-91-4)
- *Communicating about Restructuring* (SI-91-6)

The following additional materials and tools are available from the ECS Information Clearinghouse. To order, call (303) 299-3635.

- Commissioner Connection (a monthly newsletter for ECS Commissioners)
- Legislative Education Staff Network Newsletter
- Measuring the Progress of Systemic Education Reform: Presentation Made at the Fortune Education Summit
- "The State Education System--A Continuum of Systemic Change" (a large matrix used as a focus of self-assessment by state teams)
- "Supporting a New System: Characteristics, Strategies, and Examples" (a companion piece to the preceding continuum, providing examples states can use to move from one level of progress to another)
- "A Comprehensive State Strategy for the Restructuring of Education" (March 1993, Draft)
- "Closing the Loop: Facilitating Systems Change" (materials for ECS Action Learning Labs)
- "Mathematics and Science Standards: A Policymakers' Primer" (materials prepared by ECS' Synergy Project)

Meetings, Events

In 1994, ECS held a National Forum and its Annual Meeting, State Education Policy Seminars, a Legislative Staff Seminar (co-sponsored by NCSL), a meeting of Governors' Education Policy Advisors (co-sponsored by NGA), ECS Advisory Commissioners' Meetings, ECS Steering Committee meetings, and a Coalition of Essential Schools Fall Forum (co-sponsored by ECS' Re: Learning Project). ECS will hold similar events in 1995.

Communications, Networks

- ECS Information Clearinghouse
  (The Information Clearinghouse is constantly searching for new information on education reform efforts. If you have materials or data that state policymakers could use to improve education policy, please bring it to ECS' attention.)

- *State Education Leader* and *Commissioner Connection*
  (Both of these publications seek information on promising efforts in states. Contact the clearinghouse if there are state-level activities that ECS should be aware of.)

Jobs for the Future

Address: 1815 Massachusetts Avenue
Cambridge, MA 02140

Contact: Hilary Pennington
Richard Kazis
Phone: 617-661-3411
Fax: 617-661-2799

Projects, Programs, and Services

Jobs for the Future (JFF) is a nonprofit research and training firm that focuses on the changing nature of work in America, and how current and future workers are prepared for its. One of its commitments is to advance the knowledge and practice of school-to-work transition programs in the United States. In 1990, JFF embarked on its National Youth Apprenticeship Initiative, a multiyear program, to research and develop new models for linking employers with schools that create better pathways for all young people seeking to integrate academic and occupational learning. The initiative takes place at the local, state, and national levels.

At the local level, JFF works with a core of 10 exemplary sites to support practical school-to-work transition models. These sites include Massachusetts, New York, Oklahoma, Michigan, California, Pennsylvania, and Oregon.

At the state level, JFF has formed a consortium of leading-edge states working toward the implementation of statewide systems of school-to-work transition opportunity programs. Among these states are Arkansas, California, Georgia, Illinois, Indiana, Kansas, Maine, Michigan, Minnesota, New Jersey, New York, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Vermont, and Wisconsin.

At the national level, JFF provides expertise on school-to-work issues for the media, government, researchers, and practitioner communities.

JFF provides a number of particular resources and experts on the following topics and areas of interest for states seeking to design and implement school-to-work transition programs:

- Exemplary model school-to-work programs
- Strategies for converting existing programs
- Skills standards
- Links to postsecondary education
- Performance benchmarks
- School restructuring
- Employer recruitment
- Counseling and guidance
- Building community support and capacity

- Professional development
- Assessment

Resource Documents

JFF is designing two significant resource documents for use by local and state practitioners. These "tool kits" set forth essential elements and best practices from pioneering school-to-work programs across the United States. Additionally, states and local practitioners may wish to consult the following:

- *Learning Through Work: Designing and Implementing Quality Worksite Learning for High School Students: A Technical Assistance Guide*
- *Home-Grown Lessons: Innovative Programs Linking Work and High School*
- *Student Apprenticeship News*
- *Improving the Transition from School to Work in the United States*

These and other documents and resources are available from JFF's Communications Office at the address and numbers cited above.

Communications Network

JFF provides an on-line computer interactive network, "JFFnet", which connects JFF to an extensive network of policymakers, practitioners, and researchers at the local, state, and national levels. the system offers both E-mail capability, and bulletin boards on JFF-related issues and events.

Events

Since 1982, JFF and the National Institute for Work and Learning have cosponsored the National Leadership Forum on School-to-Work Transition. Detailed information is available from:

Catherine Rivera
Jobs for the Future
Phone: 617-661-3411

National Alliance of Business

Address: 1201 New York Avenue NW, Suite 700
Washington, DC 20005-3917

Contact: Patty Mitchell
Phone: 202-289-2925
Fax: 202-289-1303

Projects, Programs, and Services

The National Alliance of Business can serve as a resource for (1) business leaders to find constructive ways to provide input into the major issues of education reform; and (2) educators in states and communities who are looking for ways to involve business leaders more actively in implementing Goals 2000.

The passage of Goals 2000: Educate America Act and the School-to-Work Opportunities Act presents a unique opportunity for business involvement in education reform. The Alliance has identified five critical roles where business involvement is essential for implementing these federal initiatives:

- Articulating useful standards
- Providing work-based learning experiences
- Training the education workforce
- Advocating for adequate and effective use of funds to support education
- Building public support

One of the Alliance's top priorities is to ensure that state, local, and school improvement plans developed under Goals 2000 provide a comprehensive and coherent blueprint for a transformed education system that is capable of preparing all students for adult success. The Alliance's objectives are to work with the national business community to:

- Get top-quality business leaders to serve on state panels and local education agency panels with a focus on the 100 largest school districts that have a significant percentage of disadvantaged students;

- Create a nationwide network of business leaders who are involved in education reform and can provide state and local planning panels with support and guidance; and

- Produce and disseminate information to business leaders in the nationwide network to enable them to leverage their influence, expertise, and resources in each of the five critical roles for business.

National Alliance for Restructuring Education

Address: 700 11th St. NW, Suite 750
Washington, DC 20001

Contacts: Vicki Phillips
Phone: 202-783-3668
Fax: 202-783-3672

Projects, Programs, and Services

The National Alliance for Restructuring Education is one of the programs of the National Center on Education and the Economy and is one of the designs funded by the New American Schools Development Corporation. The Alliance is working with states, districts, and schools to simultaneously carry out reforms in five major areas:

- Standards and Assessments;
- Learning Environments (e.g., curriculum and instruction, school-to-work, technology);
- Community Services and Supports (integration of education, health, and human services to support children and families);
- Public Engagement; and
- High Performance Management.

Resource Documents

The Alliance has produced supporting materials for regional and national workshops related to standards and assessment, curriculum and instruction, and school-to-work; these have been designed so that workshop participants can adapt/replicate the workshops locally and build capacity within their own site.

A series of position papers have been developed or are under development by our National Center programs or partners. Each of these support the work of the Alliance.

- "Designing the New American High School"
- "Moving toward a Certificate of Initial Mastery"
- "A School-to-Work Transition System for the United States"
- "New Standards: An Applied Learning Framework"
- "Strategic Planning for Continuous Improvement"
- "A Time Analysis and How-To (under development)"
- "Performance-Driven Schools"

Meetings, Events

Among other events, the Alliance sponsored a School-to-Work Conference and an Alliance Summer Leadership Conference in 1994. Similar events are planned for 1995.

Communications, Networks

- Electronic bulletin boards/chat rooms available to Alliance schools and sites on America OnLine
- A bi-monthly newsletter (The Alliance) — distributed to all Alliance schools and sites
- Network of communication leaders — designated in each Alliance school and site

National Association of Elementary School Principals

Address: 1615 Duke Street
Alexandria, Virginia 22314

Contact: Ed Keller
Phone: (703) 684-3345
Fax: (703) 548-6021

Projects, Programs, and Services

The National Association of Elementary School Principals (NAESP) offers a multitude of programs and services to its members. Among those that offer assistance in systemic reform efforts are publications, professional development programs, and participation in numerous networking activities.

Resource Documents

To help schools and school districts achieve the eight national goals through systemic reform, NAESP has produced:

- Standards for Quality School-Age Child Care
- Elementary and Middle Schools Proficiencies for Principals
- Early Childhood Education and the Elementary School Principal
- Effective Teachers: Effective Evaluation in America's Elementary and Middle Schools Accreditation guidelines, video "The Little Things Make A Big Difference" and video "Little Beginnings"
- Report to Parents
- Streamlined Seminar
- Here's How
- Principal's Role in Shaping School Culture and topic-focused issues of *Principal* magazine (e.g., early childhood education).

Meetings, Events

NAESP periodically sponsors:

- a State Leaders Conference
- a State Executive Directors meeting
- Certificate of Advanced Proficiency Workshops (emphasizing site-based management)
- National Fellows Programs
- National Distinguished Principals Awards program (recognizing excellence in school leadership)

NAESP will hold its Annual Convention on April 8-12, 1995, in San Diego, California.

National Association of Partners in Education, Inc.

Address: 209 Madison Street, Suite 401
Alexandria, Va 22314

Contact: Janet Cox
Phone: 703-836-4880
Fax : 703-836-6941

Projects, Programs, and Services

The National Association of Partners in Education, Inc. (NAPE) is the only national membership organization devoted solely to providing leadership in the formation and growth of effective partnerships that ensure success for all students. NAPE has over 30 years of experience in providing training and technical assistance for developing school volunteer programs, intergenerational partnerships, business partnerships, and community service programs in school districts throughout the United States. NAPE has 30 state affiliates and 10 regional contacts who help facilitate linkages for NAPE members and other individuals and organizations across the country who are interested in partnerships and collaboratives.

Resource Documents

NAPE offers a variety of training programs, publications, and other materials to help guide local schools, businesses and communities in developing effective initiatives to improve education and support services for children and their families. Below are a few topic areas:

- workforce preparation
- building collaboratives
- strategic planning
- partnership assessment
- business/education partnerships
- intergenerational partnerships
- service-learning
- volunteer and mentor programs
- partnership evaluation
- partnerships for school reform

Meetings, Events

NAPE also manages the largest annual conference that provides professional development for educators, businesses, and community leaders in the development of school/community partnerships--the NAPE National Symposium on Partnerships in Education. The Symposium provides an established venue for highlighting the results of exemplary collaborative efforts that focus on systemic change initiatives for schools and communities. The theme of the 1994 Symposium, held on November 14-19, was "Empowering Leadership for Change: Partnerships to Collaboratives." In addition, NAPE's state affiliates and regions hold annual meetings.

Communications, Networks

- monthly newsletter, *Partners in Education*
- access to computerized database

The National Association of Secondary School Principals

Address: 1904 Association Drive
Reston, VA 22091

Contact: Thomas Koerner
Rob Mahaffey
Phone: 703-860-0200
Fax: 703-476-5432

Projects, Programs, and Services

The National Association of Secondary School Principals (NASSP), as the primary organization for middle level and high school administrators, is committed to improving the way schools are organized to ensure effective teaching and learning. NASSP is committed to reconceptualizing and providing models for restructuring middle level and high schools for the 1990s, with specific emphasis on new technologies, multicultural sensitivities, international developments, and social issues. Currently, NASSP is working at the local, state, and national levels to provide information via:

- Professional development and assessment
- Institutes and conferences
- Workshops and seminars on restructuring
- Publications
- National Networks

In partnership with the Carnegie Foundation for the Advancement of Teaching, NAASP recently announced the establishment of the National Commission on the Restructuring of the American High School. This undertaking brings together practitioners, including principals, teachers, and students, who will meet and release a definitive document on restructuring. The Commission will focus on the following areas: leadership, curriculum, pedagogy, finances, resources, climate, facilities, risk taking, technology, and outcomes.

Resource Documents

NASSP publications offer practical information for school leaders. *The High School Magazine*, the *Bulletin*, *Schools in the Middle*, *Curriculum Report*, *Tips for Principals*, and *Practitioners* are a few of the periodicals that focus on restructuring and school leadership. NASSP also publishes monographs dealing with various aspects of educational reform.

Meetings, Events

NASSP sponsors a series of meetings and events through the year that feature restructuring. Its next National Convention will occur on February 3-7, 1995, in San Antonio.

Communications, Networks

- NASSP Network Director
- ATLIS Electronic Bulletin Board
- State Organization

National Association of State Directors of Special Education

Address: King Street Station I
1800 Diagonal Road, Suite 320
Alexandria, VA 22314

Contact: Martha Fields
Phone: 703-519-3800
Fax: 703-519-3808

Projects, Programs, and Services

The National Association of State Directors of Special Education (NASDSE) is committed to strengthening options provided to a student with disabilities to help the student meet high performance standards. NASDSE is committed to helping states in Goals 2000 provide educational services to children and youth with disabilities.

NASDSE also intends to provide leadership in identifying interim goals for students with disabilities based on current data as reform is put in place. This provides an opportunity to demonstrate results and promote movement toward a performance-based system.

NASDSE also may be contacted about its leadership activities in the following areas:

- Prevention/Early Intervention
- Inclusive Schooling
- Technology
- New Approaches to Personnel Preparation
- Identification of Performance Standards and Assessment Strategies
- Decentralization
- New Policies and Practices
- School-Based/School-Linked Health and Social Services

Meetings, Events

NASDE sponsors an annual meeting (last held on November 14-16, 1994).

Communications, Networks

The organization uses three dissemination vehicles to provide information to the special education community nationwide. The first is an electronic network called SpecialNet. All SEAs and many LEAs have access to this network. *Counterpoint*, a quarterly special education journal with a circulation of 140,000, is designed to provide program information to teachers, parents, and the disabled community itself. The *Liaison Bulletin* is produced and distributed by NASDSE periodically for SEA and LEA administrators of special education. The *Liaison Bulletin* focuses on developments revolving around current issues and problem areas in special education.

National Center for Research in Vocational Education

Address: 2150 Shattuck Avenue, Suite 1250
Berkeley, CA 94704

Contact: Charles Benson
Phone: 800-762-4093
Fax: 510-642-2124

Projects, Programs, Services

National Center for Research in Vocational Education (NCRVE) is a consortium of seven institutions who share a deep commitment to the improvement of vocational education at the local, state, and national levels. The University of California at Berkeley is the lead institution, subcontracting with six other nationally recognized sites: Columbia University in New York, RAND Corporation in California, University of Illinois at Champaign, University of Minnesota at St. Paul, University of Wisconsin at Madison, and the Virginia Polytechnic Institute and State University at Blacksburg.

NCRVE is designed as a change agent. Its resources are focused on two goals:

- Preparing individuals, including members of special populations, for substantial and rewarding log-term employment opportunities
- Acting as a catalyst for a shift to an economy dominated by a highly skilled and flexible workforce

Working with local and state and national organizations both public and private, NCRVE's research and development agenda emphasizes six areas:

- The Economic Context of Vocational Education
- The Institutional Context of Vocational Education
- Curriculum and Pedagogy
- Students in Vocational Education
- Personnel in Vocational Education
- Accountability and Assessment

Resource Documents

With special regard to School to Work Initiatives, NCRVE provides expertise, resource documents, and technical assistance by maintaining an extensive roster of experts located throughout the country. In particular, NCRVE's National Consortium on Product Quality for Vocational Education establishes standards for exemplary curricular and instructional products. It also identifies, certifies, and disseminates these products. Additionally, the national Network on Curriculum Integration and Tech Prep provides technical assistance to both secondary and postsecondary institutions seeking targeted outreach services, including regional summer institutes on School-to-Work Initiatives, and the identification of model programs.

For information on NCRVE's dissemination activities, paper, and video products, contact:

Peter Seidman
University of California, Berkeley
800-637-7652

For information on NCRVE's program development, curriculum, and instructional materials, contact:

Allen Phelps
University of Wisconsin, Madison
609-263-3696

National Conference of State Legislatures

Address: 1560 Broadway, Suite 700
Denver, Colorado 80202

Contact: Julie Davis Bell
Phone: 303-830-2200
Fax: 303-863-8003

Projects, Programs, and Services

The National Conference of State Legislatures (NCSL) has been working to bring legislators the message of systemic reform and help them to develop policy to enable systemic reform. Legislators are anxious to learn about innovative policies in other states and their successes. NCSL tries to track these initiatives and supply constituents with needed information.

With support from the Danforth Foundation and in partnership with the Education Commission of the States and the National Governors' Association, NCSL has developed the "Policymakers Program." This program works with legislators, governors/governors' staff, and other state education policymakers to develop comprehensive reform packages for education and human services.

NCSL is in its second year of a program supported by the MacArthur and Mott Foundations to work with legislatures on systemic reform. This project has brought them together with Harvard University and the Consortium for Policy Research in Education to offer an institute on education reform for legislators, followed by a legislative handbook and technical assistance to the 12 participating states. The legislative handbook on systemic education reform will emphasize assessment/accountability/achievement, new academic alternatives, and governance. It will be available in fall 1994 or winter of 1995.

Resource Documents

Family Support and Education: A Holistic Approach to School Readiness. Charles Bruner and Judy Langford Carter, 1991.

Voters and School Finance: the Impact of Public Opinion. Terry Whitney, 1993.

State Policies for School Restructuring. T. Rebarber, 1992.

Accountability in Education. T. Rebarber, 1991.

Parent Enabling Policies. T. Rebarber, 1991.

National Governors' Association

Address: 444 North Capitol Street, Suite 267
Washington, DC 20001

Contacts: Paul Goren
Phone: 202-624-5309
Fax: 202-624-5313

Projects, Programs, Services

The National Governors' Association (NGA) provides opportunities for Governors to deal collectively with issues of public policy and governance. The Association's on-going mission is to support the work of the Governors by providing a bipartisan forum to help shape and implement national policy and to solve state problems. NGA's Education Policy Studies unit, part of the NGA Center for Policy Research, conducts research and policy analysis and provides technical assistance on the wide array of issues that pertain to systemic education reform. Currently NGA's Education Policy Studies Unit is focusing on the following projects:

- Capacity for Change. This project focuses on (1) state actions that can contribute to new models and frameworks for professional development for all educators, (2) building and sustaining public understanding and support for systemic education reform, and (3) early childhood transition services.

- The Transition Between School and Work: The Critical Link Between Education Reform and State Workforce Policy. This two-year project provides assistance to states in developing and implementing policies that integrate school-to-work transition as an integral component of a systemic, lifelong-learning approach to both education reform and workforce development.

- The Transformation of State Agencies To Support Systemic Education Reform. This project focuses on what states are learning and can learn from each other as they transform their departments of education into agencies that build system capacity and provide technical assistance and professional development opportunities to practitioners in the field.

- Helping Governors Sponsor Forums for Promoting Public Understanding of Mathematics and Science Education Reform. This project provides support for up to eight state-level Governors' Mathematics and Science Forums. The forums will help the public understand the importance of a scientifically literate citizenry and the critical contribution of mathematics and science to a state's economic future.

- Managing Systemic Change: Educational Policy Academy. NGA and the Council of Governors' Policy Advisors are sponsoring a policy academy on managing systemic education change. The academy will help six to eight states, selected on a competitive basis, examine their overall education systems and assist them in revamping these systems to produce improved outcomes for all children. State teams consisting of 8 to 12 top decisionmakers, coordinated out of the Governor's office, will design and set into place a policy and implementation plan for statewide systemic change in education.

- Addressing the Barriers to Education Reform. This effort will address the barriers to education reform recently identified in NGA's publication *Transforming Education: Overcoming Barriers*. The project will involve a series of strategic discussions in one of the states studied, addressing ways to overcome barriers and culminating in a national seminar on this topic.

- Ensuring All Students the Opportunity To Meet High Standards: Next Steps. This project permits NGA to continue its efforts to help define and develop Opportunity-To-Learn (OTL) Standards in order to link them with emerging content and performance standards. Activities under this project will enable NGA to (1) further explore ways to measure and implement OTL standards, (2) assist states in considering ways to incorporate OTL standards in their plans for systemic education reform, and (3) continue to contribute to the national debate on this issue.

- Implementing the National and Community Service Act. The National and Community Service Act of 1993 includes a major role for Governors in the implementation of the legislation. This project will assist Governors and their staffs in these efforts by helping in the establishment of state commissions and the development of state implementation plans.

- Policymakers Program. This project is a five-year collaborative effort of NGA, the National Council of State Legislatures (NCSL), and the Education Commission of the States (ECS) to work with state policymakers on systemic education reform. The goal of the program is to enhance the ability of policymakers to design state policies that ensure that all children and youth succeed as healthy productive citizens and learners in school and beyond.

Resource Documents

The following documents and products are currently available from NGA Publications, P.O. Box 421, Annapolis Junction, MD 20701, (301) 498-3738.

- *Time for Results: The Governors' 1991 Report on Education*, 1986 (08001)
- *Educating America: State Strategies for Achieving the National Education Goals*, 1990 (08050)
- *Every Child Ready for School: Report of the Action Team on School Readiness*, 1992 (08072)
- *Keys to a Changing System: Report of the Action Team on School Years*, 1992 (08073)
- *Enhancing Skills for a Competitive World: Report of the Action Team on Lifelong Learning*, 1992 (08074)
- *Redesigning an Education System: Early Observations from Kentucky*, 1993 (08076)
- *Ability Grouping and Tracking: Current Issues and Concerns*, 1993 (08078)
- *College Admission Standards and School Reform: Toward a Partnership in Education*, 1993 (08079)
- *Transforming Education: Overcoming Barriers*, 1993 (08080)
- *A Guide to Building Public Support for Education Reform*, 1993 (08081)
- *The Debate on Opportunity-To-Learn Standards*, 1993
- *The Debate on Opportunity-To-Learn Standards: Supporting Works*, 1993

Meetings, Events

Each year, NGA holds a Winter Meeting in Washington, D.C., and its Annual Meeting in a state capitol. Typically, at each meeting, a session is devoted to education.

Communications, Networks

- *Governor's Executive Report*, a weekly two-page update for Governors
- *Governors' Bulletin*, a regularly published document featuring different policy and program perspectives of interest to Governors
- Reports and briefing papers on systemic education reform published by the NGA Education Policy Studies Unit
- Institute for Governors' Education Policy Advisers in collaboration with ECS to enable advisers to work collaboratively on issues related to systemic reform. NGA and ECS staff keep in close contact with these policy advisers, and NGA staff work regularly with Governors' Washington representatives.

National Education Association
Center for Teaching and Learning

Address: 1201 16th Street, NW
Washington, DC 20036

Contact: Glen W. Cutlip
Phone: (202) 822-7369
Fax: (202) 822-7482

the National Education Association (NEA) with two million members, is the nation's largest education association. The organizational units of its Center for Teaching and Learning represent NEA's commitment to the idea that public education can and should be restructured and revitalized.

The **National Center for Innovation** (NCI) is organized to advance the reform of the public schools. The Center's overarching purpose is to foster creative and effective school renewal activity nationally. NCI has developed four interconnected programs to improve student learning: school based restructuring; district based restructuring; teacher preparation reform; and exemplary programs in schools. Supporting initiatives include the School Renewal Network, an electronic bulletin board, which allows teachers and researchers involved in school restructuring to share experiences, advice, and information on school reform issues. *Teacher TV*, a production of NEA and the Learning Channel, is a communication and dissemination vehicle. In addition, NEA has launched a new professional journal to share experiences and research conducted by teachers.

The **National Foundation for the Improvement of Education** (NFIE), a nonprofit, tax-exempt foundation created by the NEA, is dedicated to helping teachers and others whose work is essential to the learning community attain the resources they need to make a difference in students' lives. NFIE accomplishes its mission through grant giving, project development assistance, and professional development services. NFIE conducts a major program in dropout prevention; the Christa McAuliffe Institute for Educational Pioneering; and the Learning Tomorrow program involving technological innovations.

The **Professional Standards and Practice** (PSP) unit advances policies and programs that improve the conditions and environment for teaching and learning. In collaboration with NEA affiliates and the education community, the Standards and Practice unit supports NEA members through developing programs to advance excellence in the schools; providing information on and analysis of educational issues; and influencing education policy at the national, state, and local levels from teacher preparation, licensure, employment, certification, professional development to professional practice. A Systemic Reform Network of states has been established for the purposes of assisting NEA affiliates and local councils address the demands of school restructuring and involving teachers in designing that reform, particularly *Goals 2000*. *NEA Online*, a computer-based communication system developed in conjunction with *America Online*, is now available to all NEA members who have an account and access to a computer and modem. Numerous resources are available to support policy and program development via *NEA Online*.

New American Schools Development Corporation

Address: 1000 Wilson Blvd., Suite 2710
Arlington, VA 22209

Contact: John L. Anderson
Phone: 703-908-9500
Fax: 703-908-0622

Projects, Programs, and Services

The New American Schools Development Corporation (NASDC) was established in 1991 by American corporate and foundation leaders to create new, high performance schools for communities across the country. NASDC is supporting the work of nine Design Teams, which are implementing comprehensive and radically new school designs in over 150 schools in 18 states.

The designs recreate and integrate all elements of a school's life, including: new curricula and instructional approaches, high achievement standards and innovative means of assessing student performance, extensive professional development, new governance and organizational structures, and stronger ties to the community through parental and business involvement. The designs are being tested in diverse settings, from rural Mississippi to inner city Los Angeles to a Native American reservation in Minnesota. Beginning in 1995, NASDC will work with states, districts, and cities to have the designs adapted elsewhere on a larger scale.

Resource Documents

Resource documents available include:

An information packet, available now, includes a descriptive brochure and a list of implementation sites. Planning is underway to produce descriptions of designs and supporting implementation materials.

RAND corporation, NASDC's research and analysis partner, will produce materials documenting the implementation experience, which will address issues such as the costs required to convert schools and ways to overcome systemic barriers.

Public Education Fund Network

Address: 601 13th Street, NW
Suite 290 North
Washington, DC 20005

Contact: Amanda Broun
Phone: 202-628-7460
Fax: 202-628-1893

Projects, Programs, and Services

The Public Education Fund Network is a national network of local education funds (LEFs) committed to achieving a high quality public education for all children, especially the disadvantaged. The Network links these LEFs and works with them to mobilize the energy and resources of their communities to build effective and successful public schools. It supports, strengthens, and develops local education funds that use private money to engage their communities and work to create quality public education for all students. The Network offers a framework to enable members to work effectively in school reform through the following policy areas developed by the membership:

- school finance
- school governance;
- educational leadership;
- curriculum and assessment;
- and schools and communities.

Resource Documents

The Public Education Fund Network produces policy updates designed to link local efforts with the national debate on school reform. These updates provide a national overview of school reform issues, providing state and local examples, and highlighting areas of LEF activity. Policy updates discuss issues and implications of specific areas of school reform, focus on both the theoretical and practical aspects of public school reform initiatives, and offer strategic hints for taking action.

Communications is quarterly newsletter that focuses on issues related to the Network's five policy areas. It explores variety of other topics related to LEF work and school reform and highlights the work of membership.

Meetings, Events

The Network sponsors four to six policy workshops a year, in addition to various institutes for members and an annual conference in November. Among the workshops held in 1994 were those on "Negotiation," "School Reform," and "Grant Opportunities and School Reform."

Directory of National Resource Persons

Following is a list of national resource persons able to offer technical assistance on various aspects of Goals 2000, arranged by category.

- **Systemic Education Reform**
- **High Standards for *All* Students: Ensuring Equal Access and Educational Excellence**
- **Student Performance Assessment**
- **Professional Development**
- **Management and Governance to Promote Accountability**
- **Public Support for Education Reform**
- **School-to-Work Transition**
- **Technology**
- **Integrated Services for Children**

Systemic Education Reform

Karen Aka
Director, Effective School Services
Pacific Region Educational Laboratory
828 Fort Street Mall, Suite 500
Honolulu, HI 96813
808-533-6000

Gordon Ambach
Executive Director
John T. MacDonald
Coordinator, State Leadership Project
Ramsay Selden
Director, State Education Assessment Center
Council of Chief State School Officers
One Massachusetts Avenue NW, Suite 700
Washington, DC 20001-1431
202-336-7008

Mary Amsler
Director, Policy Support Program
Far West Laboratory
730 Harrison Street
San Francisco, CA 94107
415-565-3043

Terry Astuto
Professor, New York University
School of Education
East Building, Suite 300
New York, NY 10003
212-998-5179

Diane August
Consultant on Language and Minority Education Issues
4500 Wetherill Road
Bethesda, MD 20816
301-229-8270

Julie Davis Bell
Education Program Director
National Conference of State Legislatures
1560 Broadway Street, Suite 700
Denver, CO 80202
303-830-2200

Robert Blum
Northwest Regional Educational Laboratory
101 S.W. Main Street, Suite 500
Portland, OR 97204
503-275-9500

Gene Bottoms
Southern Regional Education Board
592 Tenth Street NW
Atlanta, GA 30318-5790
404-875-9211

Dave Clark
Professor, School of Education, CB 3500
University of North Carolina
121 Peabody Hall
Chapel Hill, NC 27599-3500
919-966-1354

Pamela Coe
Appalachian Educational Laboratory
P.O. Box 1348
Charleston, WV 25325
304-346-0415

Dick Corbett
Research for Better Schools
444 North Third Street
Philadelphia, PA 19123-4107
215-574-9300

Pat Cox
The Network, Inc.
300 Brickstone Square, Suite 900
Andover, MA 01810
508-470-0098

David Crandall
Executive Director
The Regional Laboratory for Educational
Improvement of the Northeast & Islands
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Christopher Cross
President
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1319 F St. NW, Suite 900
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Palo Alto, CA 94303
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Janice Earle and **Peirce Hammond**
Directors, Statewide Systemic Initiative
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University of Maryland
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The Edna McConnell Clark Foundation
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Chris Pipho
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Re:Learning
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National Alliance for Restructuring Education
National Center on Education and the Economy
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202-783-3668

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555 Donaldson Street
San Antonio, TX 78228
210-733-7343

Virginia Roach
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National Association of State Boards of Education
1012 Cameron Street
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Robert Sexton
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Prichard Committee for Academic Excellence
P.O. Box 1658
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606-233-9849

Susan Traiman
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Marc Tucker
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National Center on Education and the Economy
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Merrill Vargo
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California Department of Education
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916-657-3459

Tim Waters
Deputy Director, Mid-continent Regional Educational Laboratory
2550 S. Parker Road, Suite 500
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303-743-5562

High Standards for *All* Students: Ensuring Equal Access and Educational Excellence

Rex Brown
Senior ECS Fellow
Education Commission of the States
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Denver, CO 80202-3427
303-299-3652

Christopher Cross
President
Council for Basic Education
1319 F Street NW, Suite 900
Washington, DC 20004-1152
202-347-4171

Ron Deitel
National Center for Research on Evaluation,
Standards, and Student Testing
145 Moore Hall
405 Hilgard Avenue
Los Angeles, CA 90024-1522
310-206-1532

Jeffrey Howard
President, Efficacy Institute
128 Spring Street
Lexington, MA 02173
617-862-4390

Shirley McBay
President, Quality Education for
Minorities Network
1818 N Street NW
Washington, DC 20036
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Don Ernst 401-863-7977
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Student Performance Assessment

Judith Arter
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Evaluation and Assessment
Northwest Regional Education
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Portland, OR 97204
503-275-9500

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Director of Instructional
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The College Board
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National Center for Research on Evaluation,
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University of California at Los Angeles
Graduate School of Education
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310-206-1532 or 415-321-2052

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Bureau of Research and Teacher Assessment
State Department of Education
Box 2219
Hartford, CT 06145
203-566-6585

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University of Michigan
610 E. University
SEB 4115
Ann Arbor, MI 48109
313-763-9834

Linda Ann Bond
Director of Assessment
Regional Policy Information Center
North Central Regional Educational
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1900 Spring Road, Suite 300
Oak Brook, IL 60521
708-218-1277 or 317-328-9704

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